THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—12TH YEAR. SYDNEY: SATURDAY, MAY 9, 1925. No. 19.

Table of Contents

ORIGINAL ARTICLES— PAGE.

"The Intradermal Reaction in Hydatid Disease and its Clinical Value," by HAROLD R. DEW, F.R.C.S., C. H. KELLAWAY, M.D., M.S., M.R.C.P., and F. ELEANOR WILLIAMS 471

"A Note on Alteration in Blood Sugar Values After Intensive Deep Röntgen Irradiation," by H. FLECKER, F.R.C.S., and GORDON CAMERON, M.B., B.S. 478

"Sinusitis as a Source of Disease and its Effective Treatment," by SYDNEY PERN, M.R.C.S., L.R.C.P. 480

"The Tasmanian Sanatorium for Consumptives," by F. M. LOVETT, F.A.I.S. 483

REVIEWS—

The Late George E. Rennie 484

LEADING ARTICLES—

Maternity Benefit 485

CURRENT COMMENT—

The Estimation of Hepatic Function 486

The Diagnosis of Malignant Disease of the Thyreoid 487

ABSTRACTS FROM CURRENT MEDICAL LITERATURE—

Gynæcology and Obstetrics 488

Neurology 489

BRITISH MEDICAL ASSOCIATION NEWS— PAGE.

Annual Meeting 490

Nominations and Elections 490

MEDICAL POLITICS—

National Health Insurance 491

UNIVERSITY INTELLIGENCE—

The University of Sydney 495

CORRESPONDENCE—

A Therapeutic Problem 495

X-Ray Therapy 495

The Control of Surgeons 495

Mechanics of Respiration 496

POST-GRADUATE WORK—

A Course in Obstetrics in Melbourne 496

OBITUARY—

Charles MacLaurin 497

LISTS OF MEMBERS—

Corrigenda 497

AUSTRALIAN ARMY MEDICAL CORPS 497

MEDICAL APPOINTMENTS 498

BOOKS RECEIVED 498

MEDICAL APPOINTMENTS VACANT, ETC. 498

MEDICAL APPOINTMENTS: IMPORTANT NOTICE 498

DIARY FOR THE MONTH 498

EDITORIAL NOTICES 498

THE INTRADERMAL REACTION IN HYDATID DISEASE AND ITS CLINICAL VALUE.

By HAROLD R. DEW, F.R.C.S.,

C. H. KELLAWAY, M.D., M.S., M.R.C.P.

AND

F. ELEANOR WILLIAMS.

(From the Walter and Eliza Hall Institute of Research.)

THE occasional occurrence of urticaria, erythema and other symptoms suggestive of anaphylaxis, following the rupture or exploratory puncture of a cyst, directed attention to the presence of skin sensitiveness in cases of hydatid infestation. Casoni[1] in 1911 first made use of this phenomenon as an aid to diagnosis. A cutaneous test carried out like that of von Pirquet for tuberculosis yielded indefinite results, but he was able to obtain seven positive reactions in twenty-five cases of hydatid disease when hydatid fluid was injected intradermally. The fluid was more reliable for this purpose than extracts of hydatid membrane and to insure its sterility it was filtered and carbolized. The dose was 0.5 cubic centimetre and a control injection of a similar volume of saline solution was used to exclude pseudo-positive reactions.

Since then the reaction has been studied by numerous observers. Testi and Zoli[2] used fresh fluid and in thirty cases invariably obtained local reactions. In old infections after many years positive results were obtained. They believed that a failure to call forth a reaction signified that there was no echinococcal disease, though it was conceivable that the hydatid products might fail to sensitize the patient. When a reaction occurred exploratory puncture was strongly contraindicated, as there was then a risk of intense general reaction. Gasbarrini[3] employed for the test a mixture of hydatid fluid and aqueous extract of hydatid membrane obtained from the cysts of infested oxen. The appearance after three to twelve hours of local erythema with œdematous infiltration of the skin constituted a positive reaction. The erythema lasted from one to two days, while the œdema might persist for four. Positive results were obtained in eleven out of twelve patients. A patient with suppurating hydatid in which the parasite was destroyed, failed to react. Luridiana[4] obtained positive reactions in seven of ten persons with hydatid disease. He regarded failure of reaction as due either to interference with the absorption of antigen by the cyst wall, to its disappearance following suppuration of the cyst or to anti-anaphylaxis caused by exces

sive absorption of antigen. Pontano[5] and Serra[6] reported 84% and 90% of positive results. Suppuration was present in some of the patients who did not yield reactions, and Serra attributed failure of reaction either to thickened cyst walls or to desensitization.

In this country K. D. Fairley[7] applied the test together with other diagnostic tests, to a series of patients with hydatid disease, using fluid which was obtained from the cysts of sheep and filtered through a Berkefeld filter, to which no preservative had been added. He followed other observers in regarding the erythema and induration which occurs some hours after the injection, as the characteristic features of a positive reaction which he obtained in forty-four out of seventy-six patients. There appeared to be no constant relationship between the results of the skin test and those obtained by serological methods, though they might with advantage be used to supplement each other. Suppuration and rupture were frequently associated with failure to obtain skin reactions and during the first two weeks after operation the result of the test was invariably negative. In some of these patients he noted the appearance of a wheal soon after the injection, but looked upon it as an abortive type of response. More recently two of us[8] reported the study of a series of cases in which complement fixation and precipitin reactions and the intradermal test were applied, and drew attention to the constant appearance of the early wheal. In the present study we have come to regard this as the essential feature of the reaction. Goudsmit[9] also agrees with this view and quotes Ithurrat as obtaining positive results in one hundred and thirty-three out of one hundred and thirty-seven patients with hydatid disease.

The Method of Performing the Test.

The hydatid fluid is obtained by aseptic puncture of cysts from the lungs and liver of sheep. Fluid from cysts showing degeneration or infection is discarded and care is taken to avoid contamination with blood or serum. The fluid is pooled, since some cysts appear to contain fluid of low antigenic value. No preservative is added, but the fluid is filtered and subsequently incubated to insure its sterility. It is kept in small, sealed ampules on ice. When tested from time to time for potency on persons known to have hydatid disease, it retains its antigenic power for at least six months.

In carrying out the test the skin of the arm is sterilized with spirit and 0.2 cubic centimetre of the fluid is injected intradermally. A fine needle is introduced with the bevel uppermost and a raised white circular area about eight millimetres in diameter resembling pig-skin is produced by the injection. A control injection of a similar volume of saline solution is made with a separate syringe and needle about seven to ten centimetres away. The wheal caused by this last injection rapidly fades, whereas in a typical positive reaction that produced by the injection of hydatid fluid (see plate) rapidly increases in size, tends to extend by pseudopodial outrunners and may reach five centimetres in diameter. This wheal has generally reached its maximum in fifteen to twenty minutes. It is surrounded by a zone of erythema four or five centimetres wide which fades with the wheal in the course of an hour or so. This immediate reaction is usually followed some hours afterwards by the appearance round the site of the injection of a large area of erythema and deep induration which may have a definite edge. This delayed reaction varies greatly in its time of onset, in its extent and in its duration. It may appear simultaneously with the wheal, but more often after a period of eight to twelve hours. It may last from twenty-four to seventy-two hours. In some cases almost the whole of the limb becomes hot and red with extensive diffuse induration and œdema of the subcutaneous tissues. The condition may simulate cellulitis, except for the absence of tenderness or enlargement of the regional lymphatic glands and the slight degree of associated general disturbance. Apart from a little itching and a sensation of heat and weight in the limb the patient does not as a rule complain. Microscopical examination shows that these appearances are caused by an œdematous infiltration of the subcutaneous connective tissue, the tissue bundles being separated by exudation of fluid. There is some vascular reaction and an accumulation of eosinophile leucocytes. The delayed phase does not invariably occur and in our opinion the essential feature of the reaction is the occurrence of the immediate wheal.

In some cases especial care is needed to avoid mistaking pseudo-positive for genuine reactions. This is more particularly so in cases of jaundice with pruritus, in those with generalized skin disease and in patients with a tendency to urticaria related to abnormal sensitiveness to a foreign protein. In a hæmophilic boy a positive result was not confirmed at operation, when the suspected tumour proved to be a hæmatoma. The presence of a deep-seated cyst, however, was not excluded. There is also the possibility to be considered that some individuals may be sensitive to sheep protein which may be accidentally present in the testing fluid. With due precautions as to adequate control the reaction appears to be absolutely specific. A very large number of tests have been performed on patients in whom no hydatid cyst was demonstrated at operation or autopsy with uniformly negative results. Care in interpretation and experience are needed so that the observer may not be misled by pseudo-positive reactions.

The Application of the Test to Clinical Medicine.

From the clinical point of view hydatid infestations may be divided into two groups; in discussing the value of the intradermal test these will be considered separately. These groups are: (i.) Preoperative cases, in which no operation has been performed and in which there is no previous history of the disease; (ii.) post-operative cases, in which an operation with or without drainage has been performed or in which there is a history of previous hydatid disease.

Pre-Operative Cases.

Only those cases in which the diagnosis has subsequently been confirmed have been included. We have had to discard a few in which either owing to the disappearance of the patient or to refusal of operation positive reactions remained unconfirmed. We have further divided them into two sub-groups, one containing those in which the cysts have been complicated by suppuration or rupture and the other, cysts not so complicated.

The Reaction in Cases Complicated by Suppuration or Rupture.

The effect of suppuration on the hydatid cyst is to cause death of the parasite and an inflammatory reaction around it. In the early stages of this process there appears to be an increased absorption of hydatid products, a tendency which may be modified by degeneration or calcification of the parasite prior to suppuration or by the presence of a thick adventitious capsule. Long-standing suppuration, too, may involve the destruction of all absorbable antigen and its disappearance from the circulation. These considerations serve to explain the very variable results of the complement fixation test which together with those of the skin test, are shown in Table I.

Of the sixteen patients in this group all gave a definite immediate wheal, while none showed any trace of a delayed reaction after twenty-four hours. In one there were very slight erythema and subcutaneous œdema after six hours. This suppression of the later phase of the skin reaction in patients with suppurating hydatid cysts is in strict accord with the observations of earlier observers who neglected the early phase and recorded negative results in this type of case. There does not appear to be any constant relation between the absence of the later phase of the skin reaction and the extent to which complement is fixed by the patient's serum. In five patients there was no complement fixation; in three others it was slight in extent, while in the remainder the serum was capable of deviating very large amounts of complement. It is evident that absence of the late reaction is not invariably due to the protective effect of a large amount of circulating antibody.

The Reaction in Cases Uncomplicated by Suppuration or Rupture.

Of twenty-four patients in whom cysts were found in various sites twenty-two or 92% gave positive skin reactions. These results are shown in Table II.

Uncomplicated cysts are seen to give both an immediate wheal and a delayed reaction. One patient gave an immediate reaction only and his infection should probably have been classified with the complicated cysts. At operation a bile-stained cyst of the liver was drained, although there was no proof of actual suppuration. In three other cases the delayed reaction was very slight and in one no observation was made at twenty-four hours. There were two patients who failed to react to the test. In one a small single subcutaneous cyst about 2.5 centimetres in diameter was found in the fat of the buttock and in another the test was performed just before the anæsthetic was started. This last result should be discarded, since of five patients who yielded positive reactions before operation, three failed to react when the test was carried out during the operation under anæsthesia. In one there was no immediate wheal, but a definite reaction after twenty-four hours. This is the only example we have found of this type of response.

Of the twenty-two patients in whom the skin test yielded a reaction, it will be noted that the serum of nine failed to fix complement and that

TABLE I.

Name.	Site.	Complication.	Result of Intradermal Test.			Complement Fixation, Minimum Hæmolytic Doses.
			Immediate.	Six Hours.	Twenty-Four Hours.	
J.C.	Liver	Suppuration	+++	———	———	40
Y.	Liver	Suppuration	+++	———	———	3
F.	Liver	Degeneration and suppuration	+++	———	———	45
M.	Liver	Suppuration	+++	———	———	56
C.	Liver	Suppuration	+++	———	———	5
J.	Liver	Suppuration	+++	———	———	80
E.	Liver	Drained; no note made	+++	———	———	35
McE.	Liver	Bile effusion, degenerated	+++	———	———	6
B.	Liver and lung	Suppuration	+++	———	———	No fixation
Bo.	Liver	Peritoneal rupture	+++	———	———	50
W.	Pelvis	Multiple, degenerated, probably infected	+++	———	———	No fixation
Br.	Lungs (multiple)	Ruptured	+++	———	———	60
D.	Lung	Suppuration	+++	———	———	40
Wo.	Lung and liver (communicating cyst)	Suppuration	+++	———	———	No fixation
Du.	Lung	Suppuration	+++	———	———	No fixation
G.	Lung	Suppuration	+++	+——	———	No fixation

TABLE II.

Name.	Site.	State of Cyst.	Result of Intradermal Test.			Complement Fixation, Minimum Hæmolytic Doses.
			Immediate.	Six Hours.	Twenty-Four Hours.	
F.	Liver	Multiple, uncomplicated	+ + +	— — —	+ + +	25
A.	Liver	Simple	+ + +	+ + +	+ + +	14
C.	Liver	Simple	+ + +	+ + +	+ + +	3½
Ad.	Liver	Simple, degeneration	+ + +	+ — —	+ + +	6
As.	Liver	Degenerated	+ + +	+ + —	+ + +	4
J.	Liver Omentum	Simple	+ + +	+ + —	+ + +	2½
W.S.W. ...	Liver	Simple	+ + —	+ + +	+ + +	2
McK.	Liver	Degenerated	+ + +	+ — —	+ — —	No fixation
P.	Liver	Large cyst	+ + +	Not observed	+ — —	No fixation
H.	Liver	Uncomplicated	+ + +	+ + +	+ + +	No fixation
Jo.	Liver	Simple	+ + +	+ + +	+ + +	No fixation
S.	Liver	Bile "stained"	+ + +	— — —	— — —	No fixation
E.	Liver	Simple liver	+ + +	— — —	Not observed	No fixation
O.	Orbit	Simple	+ + +	+ — —	— — —	4
T.	Chest wall	Multiple	+ + +	+ — —	+ + —	2½
B.	Omentum	Calcified cyst	+ + +	— — —	+ + +	2½
Al.	Lung	Simple	+ + +	+ + +	+ + +	4
H.	Lungs	Some degeneration	+ + +	+ + —	+ + +	3½
Sw.	Lungs	Simple	+ + +	+ — —	— — —	3½
Th.	Lung	Simple	— — —	— — —	+ + +	No fixation
R.	Lung	Simple	+ + +	+ + +	+ + +	No fixation
McL.	Lung	Simple	+ + +	— — —	+ + +	No fixation
L.	Liver	Simple	— — —	— — —	— — —	No fixation
Cr.	Buttock	Simple	— — —	— — —	— — —	No fixation

of the remainder eleven caused only a slight degree of complement fixation.

The two negative results recorded here have been the only ones which we have so far observed in proved cases of the disease, though it may well be that some of our patients who did not react and in whom the diagnosis is unconfirmed, will ultimately be found to have hydatid cysts.

We have performed the test in one hundred and twenty-eight patients with various diseases other than hydatid with negative results and the validity of these findings has been upheld at operation or autopsy in a large number of them. In this indirect way the test has been of great value, in eliminating hydatid disease in the differential diagnosis of ovarian cysts, enlargement of the liver, abdominal malignant disease, phthisis, intra-thoracic neoplasms, simple pleurisy and syphilis of the lung. We are placing more and more reliance on this test in the diagnosis of affections not associated with a previous history of hydatid disease and many conditions in which there was no clinical and X-ray evidence, have been successfully diagnosed by this means.

Post-Operative Cases.

Table III. shows the results of the tests in a few of our patients at varying periods after operation. It will be noted that despite the prolonged persistence of positive reactions, these ultimately tend to disappear. The complement fixing power of the

TABLE III.—POST-OPERATIVE CURED PATIENTS.

Name.	Site.	Time Since Operation in Months.	Result of Intradermal Test.			Complement Fixation, Minimum Hæmolytic Doses.
			Immediate.	Six Hours.	Twenty-Four Hours.	
B.	Liver and Omentum	5	+ + +	+ + +	+ + +	No fixation
A.	Liver	5	+ + +	+ + +	+ — —	6
M.	Lung	9	+ + +	+ + +	+ + +	2
N.	Lung	13	+ + +	+ + + +	+ + + +	No fixation
C.	Liver	15	+ + +	+ + + +	+ + + +	4½
H.	Liver	16	+ + +	+ + + +	+ + + +	2
W.	Liver	21	+ + +	+ + +	+ + +	No fixation
P.	Liver	22	+ + +	+ + +	+ + +	No fixation
K.	Liver	29	+ + +	+ + +	+ + +	2½
Cu.	Lung	30	+ + +	+ + +	+ + +	2
G.	Liver	60	+ + +	+ + +	+ + +	No fixation
Gr.	Liver	192	+ + +	+ + —	+ — —	No fixation
Pa.	Liver	60	— + —	— — —	— — —	No fixation
D.	Liver	360	— — —	— — —	— — —	No fixation

serum appears to be lost first, while at a later period in the more delicate skin test the power to react may fail.

In this type of case the most intense skin reactions are obtained and the delayed reaction may be very striking, involving the whole upper limb. The amount of complement fixed by the serum is by this time small. Immediately after the operation the reactions of the patient are quite different and throw some light on the nature of the skin reaction. They will be discussed later.

There is another group of post-operative cases in which cysts are left behind at operation or new cysts form subsequently. If there is sufficient absorption of antigen from this source the capacity of the serum to fix complement may be increased. Table IV. gives the result of the tests in a few of these patients.

It will be noted that independently of the amount of complement fixed by the serum the delayed intradermal skin reaction is abolished. The number of cases is too small to draw definite conclusions from this fact, but it is possible that it may prove to be of value in deciding whether a cure has been effected in old cases of the disease.

The Nature of the Reaction.

Gathering together our observations on the type of skin reaction in these various groups of cases, let us see what light they throw on the nature of this reaction. The delayed reaction does not appear in cases with suppuration, immediately after rupture and in some cases of old standing disease possibly associated with recurrence or with failure to remove all cysts by operation. In all these cases the skin reaction is confined to the immediate wheal and in many though by no means all, is associated with a high titre for complement fixation and precipitation in the serum. The more usual variety of skin reaction is met with in association with uncomplicated cysts, at a later stage after operation or rupture and in many degenerating cysts. It is almost invariably associated with feeble or absent complement fixation reactions, a rule to which there were only two exceptions in the cases reported here. It is possible that during the stage of disappearance of the immunological responses the delayed skin reaction is lost before the immediate one which may account for the absence of the delayed reaction in a few very old post-operative cases.

Both phases of the skin reaction are indubitably specific, though the striking differences between them depend either upon the action of the same cause in different tissues or upon different causes. If the former view be correct, both alike must be regarded as anaphylactic phenomena, the immediate response determined by the action of antigen on the capillaries of the sensitive skin and the delayed by a similar action on the endothelium of the vessels in the subcutaneous tissue which is only reached by the antigen after the passage of a definite time. Alternatively we may regard the first phase as directly anaphylactic and the second as due to the gradual production and accumulation in the subjacent tissues of toxic products of the interaction of antibody and antigen or to the disintegration of the hydatid fluid by some other agency elaborated by the body in response to the presence in it of the parasite. We have preferred to discuss our experimental data in terms of the first hypothesis which has the merit of simplicity and seems to explain most of the facts.

Unfortunately we have not been able to cause skin sensitiveness in animals either by the implantation of brood capsules or by inoculation of hydatid protein, so that the investigation of the two phases of the reaction by methods analogous to those adopted by Zinnser[10] for sensitization to tubercle bacillus protein was not possible. We have, however, succeeded in producing both phases of the intradermal reaction in a normal individual. One of us (C.H.K.), who had previously not reacted to an intradermal injection, was injected subcutaneously with four doses (each five cubic centimetres) of sterile hydatid fluid at intervals of three days. The fourth injection caused some local reaction after twelve hours (ninth day after the first injection). An intradermal test on the same day gave an immediate wheal, but no delayed reaction. There was no response to the complement fixation and precipitin tests. On the eleventh day the intradermal test showed both phases, the delayed reaction being

Table IV.—Residual or Recurrent Cysts.

Name.	Site.	Time Since Operation, Years.	Result of Intradermal Test.			Complement Fixation, Minimum Hæmolytic Doses.	Findings at Second Operation.
			Immediate.	Six Hours.	Twenty-Four Hours.		
K.	Liver and spleen	7	+++	+—	——	No fixation	Hydatid in the left lobe of liver
B.	Back, spine	2½	+++	——	———	No fixation	No pelvic cyst, but pressure signs indicate sacral disease
J.	Spine	2½	+++	——	———	45	Still discharging cysts
Bu.	Chest	1½	+++	——	———	No fixation	Cyst removed from pectoral muscles
L.	Lung	3	+++	———	———	No fixation	Calcareous cyst not removed
Jo.	Liver	6	+++	———	———	80	Suppurating hydatid

slight in extent. The serum fixed four minimum hæmolytic doses of complement, but there was no reaction to the precipitin test. On the twelfth day both phases were present, the delayed reaction twenty-four hours later being very severe, but on the following day the delayed reaction was less evident and neither the complement fixation nor precipitin reactions were obtained. On the eighteenth day the delayed reaction could still be evoked, but was much less extensive and by the thirtieth day it could no longer be elicited. That the subcutaneous tissues were still sensitive to a larger dose was shown on the thirty-third day by the subcutaneous injection of one cubic centimetre of hydatid fluid. There was a well-marked reaction within eight hours which persisted for three days. On the fortieth day the primary wheal in response to an intradermal injection was larger than on any previous occasion, but no delayed reaction was obtained. This type of response is still present on the seventieth day.

The delayed reaction was obtained only between the eleventh and eighteenth days, the immediate type of reaction appearing earlier and persisting when the delayed response could no longer be obtained. It seems likely that both reactions are anaphylactic in nature, but this experiment does not afford us any evidence that either anti-anaphylaxis or the protective action of excess of circulating antibody is responsible for the absence of the delayed reaction; it suggests rather that the type of response in which only the immediate wheal is obtained, is a phase in the development of sensitization and in the course of desensitization. It suggests also that the immediate type of response cannot be abolished by anti-anaphylaxis, since it appeared while the antigen was presumably still being absorbed from the last sensitizing injection. The immediate skin reaction appears to be similar in all respects to those which result from the intradermal injection of foreign protein in a sensitive subject. In some patients with hydatid disease in whom there was a severe degree of jaundice, the wheal became much more deeply pigmented than the surrounding skin and the same phenomenon was observed when a minute dose of histamine was injected intradermally. In this latter case the deepening of coloration was presumably due to the action of the drug upon the capillaries in the skin with the resultant effusion of serum containing bilirubin; this strengthens the impression that in this immediate response we are dealing with the effect of a relatively massive dose of antigen upon sensitive capillary endothelium, the injection being confined to the skin and being under a certain degree of pressure. Any small amount of circulating antibody present in the area would be swamped by the excess of antigen, so that no matter how high the titre of circulating antibody the tissues could not fail to elicit the reaction.

In the case of the delayed response a much more extensive area is affected and it might be anticipated that if the effect were directly anaphylactic, it would only occur when the circulating antibody was small in amount and when there was no constant leak of antigen into the circulation. The most pronounced reactions would then be found in cases long after operation when time had been afforded for the antibody to disappear from the circulation, while remaining fixed to the body cells.

It is clear, however, that in cases of hydatid infestation we are concerned with a very complicated state of affairs, for there may be a steady leak of antigen for a long period which would probably occur in cases of infestation with multiple cysts. In this way a very prolonged state of anti-anaphylaxis might be set up. There may be any degree of leakage of antigen from an almost negligible amount which would be associated with a low titre of circulating antibody combined with a slight degree of sensitiveness of the body cells, to an extreme degree of leakage associated with temporary disappearance of both circulating and fixed antibody except for that fixed in the less accessible tissues of the sensitive skin. Some cysts may never have leaked and others may have leaked intermittently in large amounts. Suppuration and other accidents may cause excessive liberation of antigen with resultant temporary desensitization or terminate a leak of antigen which has been in progress for years by destruction of hydatid products. Operation may greatly increase the leakage of antigen by spilling a large amount of fluid or may remove its source by excision of the responsible parasite. In addition to all these factors which may cause change in the type of skin reaction, there is the well-known fact of the variation in antigenic power of hydatid fluid.

The reaction in every case must be studied in conjunction with the known facts concerning its pathology. This we have attempted to do in a small series of patients operated on by one of us (H.D.) and though the findings are somewhat irregular, they serve to illustrate the extreme complexity of the problems of immunology presented by the disease.

Case Reports.

Case 1.—A large cyst of the right lobe of the liver containing numerous bile stained daughter cysts was exposed and treated by puncture, injection of "Formalin," evacuation of its contents and resection of the extra-hepatic part of the cyst wall. A fair amount of hydatid fluid was probably absorbed at operation. A calcified cyst of the right lobe of the liver as large as a cricket ball was left untouched. The intradermal test before operation gave a large immediate wheal, but no delayed response. There was no change in this reaction when it was tested on the first, fourth, eighth and fourteenth days after operation. Before operation there was no reaction to the complement fixation and precipitin tests and this remained unchanged till the eighth day after operation when the serum deviated one-half of a minimum hæmolytic dose and gave the precipitin reaction in a dilution of 1 in 2 (½++). On the fourteenth day thirty minimum hæmolytic doses were deviated and the result of the precipitin test was ½++ ¼+. The absence of the delayed reaction before operation was clearly not due to any protective effect of circulating antibody. It may have been a phase in the fading out of previous sensitiveness or it may have been due to anti-anaphylaxis from a prolonged leakage from the cyst.

Multiple Cysts.

Case 2.—At operation a scarred fissure was found in the right lobe of the liver with several small cysts near it which was almost certainly the site of a ruptured cyst responsible for the wide sowing. This was left untreated. There were multiple thick-walled cysts in the transverse mesocolon and the great omentum and attached to the bladder. Five were resected and one was treated by evacuation of its contents and subsequent closure. In the left lobe of the liver two cysts were treated, one small and degenerated and the other very large with bile-staining of its contents which after evacuation could not be properly closed. Before operation the intradermal test gave only an immediate wheal and there was no delayed response. The serum fixed one half of a minimum hæmolytic dose of complement and there was no response to the precipitin test. A delayed intradermal reaction appeared in response to tests on the first, fourth and eighth days, but was absent on the fourteenth day. After the operation the amount of circulating antibody without any preliminary fall increased, the tests giving the following results:

TABLE V.

Day.	Complement Fixation Minimum Hæmolytic Doses.	Precipitin Test.			
		½	¼	⅛	1/16
First	½	++	+	—	—
Fourth	½	++	+	—	—
Eighth	35	++	++	+	—
Fourteenth ..	40—45	++	++	++	+

The absence of any early change in the serum reactions argues strongly against any considerable absorption of hydatid fluid as the result of the operation, that is an absorption in excess of that already in progress. The phenomena observed may be best explained by the assumption that a state of anti-anaphylaxis existed before the operation which was abolished by the removal of the sources of absorbed antigen and allowed the delayed reaction to appear. Its subsequent disappearance on the fourteenth day must be attributed to the protective effect of a large excess of the circulating antibody developed after the removal of the anti-anaphylactic condition.

Cyst of Upper Lobe of Right Lung.

Case 3.—Some fluid had been previously coughed up by the patient. At operation a cavity full of crumpled, degenerated hydatid membrane and collapsed daughter cysts was found. This was mopped out and closed. There appeared to be but little absorption of fluid at the operation. Before operation there was a delayed as well as an immediate skin reaction. The serum fixed three and a half minimum hæmolytic doses of complement and the result of the precipitin test was ½++ ¼+.

After operation the delayed response could no longer be elicited on the first, fourth, eighth or fourteenth days. There was an immediate fall in the titre of circulating antibody followed by a return to its original level as showed by the serum reactions.

In this case an empyema was opened a month after the first operation and the pus contained several daughter cysts which may have come from the rupture of another cyst below the diaphragm. There was probably a continued leak of antigen after the first operation and the abolition of the delayed response may have been caused by anti-anaphylaxis.

TABLE VI.

Day.	Complement Fixation Minimum Hæmolytic Doses.	Precipitin Test.			
		Pure	½	¼	⅛
Before operation	2½	++	++	+	—
First	3	++	+	—	—
Fourth	6	++	++	—	—
Eighth	20—25	++	++	++	++
Fourteenth ..	30	++	++	++	++

Cyst at the Base of the Right Lung.

Case 4.—At a previous operation a cyst of the left lung had been treated. At operation the cyst was exposed, evacuated and closed without drainage. Some fluid was injected into the muscles near the wound. A large cyst in the liver was left untouched.

Before operation the intradermal test gave both immediate and delayed reactions and was quite unaffected by the operation, the same response being obtained on the first, fourth, eighth and fourteenth days. The serological reactions were:

TABLE VII.

Day.	Complement Fixation Minimum Hæmolytic Doses.	Precipitin Test.	
		Pure	½
First	½	++	+
Fourth	None	++	+
Eighth	4	++	++
Fourteenth ..	4	++	++

The very small change in these reactions after the deliberate injection of lung fluid at operation suggests that the fluid from the lung cyst either had not sufficient antigenic power or was not injected in sufficient amount to exceed to an appreciable extent that normally absorbed from the liver cyst and so cause anti-anaphylaxis. The titre of circulating antibody on the fourteenth day was not sufficiently high to remove the delayed reaction by its protective effect. At the same time the amount of antigen injected was sufficient to cause a very definite rise in the titre of circulating antibody after a fortnight.

Case 5.—A large cyst of the liver which was drained and continued for some time to discharge hydatid material. The data in this case were somewhat incomplete. Before operation the intradermal reaction was both immediate and delayed. After operation the delayed reaction was abolished and did not appear when the test was done on the first, fourth and eighth days. There was only a slight, delayed reaction five weeks after operation. The serum fixed three minimum hæmolytic doses of complement before operation, on the eighth day forty-five minimum hæmolytic doses and five weeks after operation the same amount. The disappearance of the delayed reaction may have been due in the first place to anti-anaphylaxis and later to the protective effect of circulating antibody.

These cases illustrate very well the great variety of immunological responses which may occur, and show how impossible it is in the present state of our knowledge to dogmatize in regard to their causation.

SUMMARY.

1. The intradermal reaction in hydatid disease presents two phases, an "immediate" urticarial wheal and a "delayed" erythema and œdema of the subcutaneous tissues. The former is the essential feature of the reaction.

2. In carrying out the test it is important that the injection should be intradermal and the patient should be observed for the first half-hour and at the end of twenty-four hours.

3. The test is specific, although care has to be taken to provide controls and some experience in interpreting it is necessary to avoid pseudo-positive readings.

4. In pre-operative or doubtful cases the test is of extreme value. In uncomplicated cases it is much more reliable than the complement fixation test, giving 92% of positive findings.

5. Suppuration or rupture does not cause disappearance of the power to react, but the "delayed" phase is inhibited or suppressed.

6. In post-operative cases the test remains positive in all patients and even in cured patients may yield a reaction sixteen years after operation.

7. There is great variation in the type of response immediately after operation which is difficult to explain in the present state of our knowledge.

REFERENCES.

(1) T. Casoni: "*La Diagnosi Biologica dell' Echinococcosi Umana Mediante l'Intradermoreazione*," *Folia Clinica, Chimica e Microscopica*, 1911-1912, Volume IV., pages 5-16.
(2) A. Testi and C. Zoli: *Rivista Critica di Clinica Medica*, Florence, December 20, 1919, Volume XX., Number 51, page 601. (Abstracted in *The Journal of the American Medical Association*, April 17, 1920, page 1133.)
(3) A. Gasbarrini: "*Sur Valore dell' Intradermoreazione nell' Echinococcosi Umana*," *Il Policlinico (Sezione Medica*, 1919, Volume 26, page 441). (Abstracted in *The British Medical Journal*, 1920, Volume 2, Epitome of Current Medical Literature No. 357.)
(4) P. Luridiana: "*Valore Clinico dell' Intradermoreazione del Casoni per la Diagnosi di Echinococcosi*," *Il Policlinico, Sezione Prat.* January 10, 1921, Volume XXVIII., page 41. (Abstracted in *The British Medical Journal*, March 19, 1921; Epitome of Current Medical Literature, No. 350.)
(5) F. Pontano: "*Intradermo-e Sottocutaneoreazione con liquido cistico nelle echinococcosi umane.*" *Il Policlinico*, 1920, Volume XXVII., *Sezione Medica*, page 405.
(6) G. Serra: "*L'intradermoreazione nella diagnosi dell' echinococcosi*," *Il Policlinico*, Roma, 1921, Volume XXVIII., *Sezione chiriorgiaa*, page 35.
(7) K. D. Fairley: "The Investigation of the immunity reactions in hydatid disease." THE MEDICAL JOURNAL OF AUSTRALIA, July 14, 1923, page 27.
(8) H. Dew and F. E. Williams: "Diagnostic Methods in Hydatid Disease," The Supplement to THE MEDICAL JOURNAL OF AUSTRALIA (Transactions of Congress), March 15, 1924, page 113.
(9) J. Goudsmit: *Nederlandsche Tijdschr. voor Geneeskunde*, September 6, 1924, page 1235. (Abstracted in *The British Medical Journal*, December 13, 1924, Epitome of Current Medical Literature, No. 480.)
(10) H. Zinsser: "Studies on the Tuberculin Reaction and on Specific Hypersensitiveness in bacterial infection," *The Journal of Experimental Medicine*, 1921, Volume XXXIV., page 495.

A NOTE ON ALTERATION IN BLOOD SUGAR VALUES AFTER INTENSIVE DEEP RÖNTGEN IRRADIATION.

By H. FLECKER, F.R.C.S. (Edinburgh),
Honorary Radiologist to the Austin Hospital;

AND

GORDON CAMERON, M.B., B.S. (Melbourne),
Honorary Pathologist to the Austin Hospital;
Stewart Lecturer in Pathology,
University of Melbourne.

(*From the Departments of Radiology and Pathology, Austin Hospital for Incurables, Heidelberg, and the Pathological Department, University of Melbourne.*)

AMONGST the many conditions for which deep X-ray therapy has been recommended, is carcinoma of the pancreas. Richards(1) has reported several cases in which a remarkable improvement in the general condition, persisting many months, followed such treatment. Similar results (unpublished) have been obtained by one of us (H.F.). The question arose whether the islets of Langerhans in the pancreas would be affected and in order to obtain some information as to this problem a series of experiments on healthy guinea pigs were planned, it being obviously impossible to make any observations on normal human beings. As the opportunities arose, we were able to examine several patients who for various conditions, mostly malignant disease, were treated with deep X-rays.

Our investigation aimed at following the variations, if any, in the fasting blood sugar values and the histological changes, especially in the pancreas.

In all thirty-four healthy guinea pigs, both male and female, were used for experimentation. Thirteen of these served as controls, being kept under conditions identical with the test animals, but not being exposed to irradiation. The remaining twenty-one animals were treated as follows: Eleven were exposed to a full "erythema" dose, that is one which was comparable to the "erythema" dose in the human subject, allowance being made for the disproportion in size of the subjects. Five animals were given one quarter of this dose, five one half. Blood sugar estimations were carried out by means

TABLE I.

Dose.	Number of Animals Exposed.	Number of Animals Showing Definite Alterations.
One quarter dose	5	0
One half dose ..	5	2
Full dose	11	6

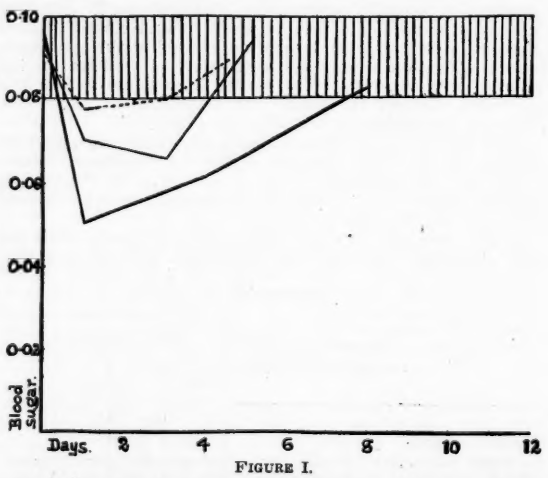


FIGURE I.

Curves Representing Average Blood Sugar Values in Guinea Pigs Reacting to X-Rays. Dotted line is the average curve obtained with quarter dose. Thin line is the average curve obtained with half dose. Heavy dark line is the average curve obtained with "full" dose. The shaded area represents the limits between which the control blood sugar values fell.

of Maclean's micro-method prior to and after the exposures both in the animals which were the subject of experiment and in the control animals, blood being obtained from the veins of the ear just before the animals were fed each day. Such observations extended over a period of three to four weeks. Certain of the animals were killed at different time intervals after exposure and sections of the intestines, liver and pancreas taken, fixed in Lane's aqueous chrome sublimate solution and stained with Bensley's neutral gentian.[2] We had previously found that the fasting blood sugar value in normal guinea pigs varied between 0.07% and 0.115%.

Table I. indicates the proportion of animals in which we obtained results.

In all animals reacting we obtained a temporary depression of the blood sugar value within twenty-four hours of exposure with a return to normal limits within four to eight days. Average curves are shown in Figure I.

Corresponding with these alterations, we have observed certain changes in the organs examined.

In the pancreas in several of the animals we found a thinning out of the granules of the β cells of the islets of Langerhans, associated with a vascular hyperæmia, lasting several days and followed by a gradual relative increase in the number of the α cells, as determined by differential counts of the islet cells. Small necroses also occasionally appeared, usually not before the eighth day after irradiation and involving mainly the acinar tissue. Occasionally in the liver and not necessarily connected with the pancreatic changes, we found extensive fatty degeneration of liver cells, sometimes confined to the centre of the liver lobule, at others mainly peripheral. We also found slight necrosis and desquamation of the superficial epithelium of the intestine in a few animals.

None of these changes did we find to be constant, but they are, we think, suggestive.

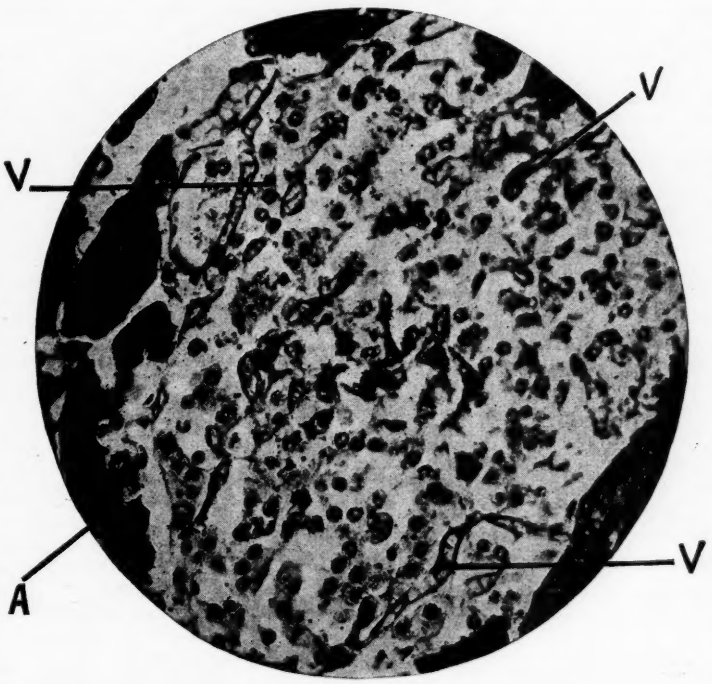


FIGURE II.
Photo-Micrograph of a Typical Islet of Langerhans Seen Two to Four Days after Exposure to a "Full" Erythema Dose of X-Rays, Showing Hyperæmia of Vessels. *V* = Vessels. *A* = Acinar cells.

It may be of some interest to state that during the experiments two of the animals gave birth to dead fœtus, which on microscopical examination manifested great congestion of the blood vessels of the pancreas, intestines, liver, kidneys and heart, together with extreme desquamation of the lining epithelium and destruction of villi and glands of the small intestine, patchy necrosis of the liver and desquamation of the tubular epithelium of the kidneys.

Our observations on human beings are, as stated above, few in number. Of six patients who were treated with deep X-ray therapy by an upper abdominal exposure and in whom careful examination of the blood sugar value was possible, definite results were obtained in two only. In one of these the condition was diagnosed as carcinoma of the body of the pancreas, in the other as carcinoma of the pylorus. Much the same type of result as obtained in the animal experiments, was seen. This is shown in Tables II. and III.

We were especially careful to make sure that each specimen of blood was obtained in the post-absorptive state, an interval of eight to ten hours at least having elapsed since the last meal. Both patients were examined whilst they were in hospital, so that although in the second patient the value is after two days within the normal limits, we are inclined to believe that a definite alteration occurred. Our observations are being continued at the present time.

It is not proposed to discuss the question of the morphological and clinico-pathological results of exposure to X-rays, for this has recently been done by Rolleston.[3]

Petersen and Saelhof[4] demonstrated in the case of dogs a temporary increase in blood sugar, followed by a lowering of the level in five hours to several days after irradiation. They quote the work of Stephan in which irradiation of two diabetic patients produced an increased carbo-hydrate tolerance for some days. Petersen and Saelhof sug-

gested that "the effect of irradiation on the pancreas is due to direct stimulation of cellular metabolic processes and not due solely to alterations primarily vascular." We are inclined to think that the vascular factor is important, for an intense hyperæmia of the islets is a common finding shortly after irradiation (see Figure II.). On the other hand, we do not wish to create the impression that there is primarily a pancreatic disturbance. In our work the whole animal was exposed to irradiation, whilst we have described above the various lesions which occasionally were found in organs other than the pancreas. On such evidence it would be ridiculous to advance a theory.

TABLE II.—SHOWING BLOOD SUGAR PERCENTAGE OF PATIENT WITH CARCINOMA OF BODY OF PANCREAS.

While fasting, before exposure	0.150%
Twenty-four hours after exposure to full erythema dose	0.078%
Four days after exposure to full erythema dose	0.088%
Eight days after exposure to full erythema dose	0.106%

Doub, Bolliger and Hartman[5] in a recent paper also describe an initial increase of blood sugar in dogs, followed by a distinct hypoglycæmia, well marked within twenty-four hours of exposure.

Dodds and Webster[6] from observations made on patients after X-ray and radium treatment, came to the conclusion that there was a temporary inhibition of the function of the principal abdominal glands, especially of the liver, pancreas and kidneys. They found very little alteration in the constituents of the blood, a definite decrease in the urea content being the only definite change. As regards the blood sugar value, their experience seems to have been similar to ours, with the exception that in one of our cases a definite drop in the value occurred, whilst in another a suggestive alteration was found. It becomes obvious that argument from

TABLE III.—SHOWING BLOOD SUGAR PERCENTAGE OF PATIENT WITH CARCINOMA OF PYLORUS.

While fasting, before exposure	0.104%
Two days after exposure to full erythema dose	0.072%
Four days after exposure to full erythema dose	0.088%
Seven days after exposure to full erythema dose	0.106%

animal experimentation results should be considerably restricted.

In connexion with the lesions found in the liver and intestines in the guinea pig, we would like to contrast them with the following observations. Warren and Whipple,[7] using a powerful dose of X-rays, produced symptoms in dogs allied to those occurring in man and classified as Röntgen ray intoxication. The chief pathological change found was extreme destruction of the mucous membrane of the small intestine. We have noted slight degrees of this in the guinea pig.

Warthin and Case[8] have recently described extensive focal necroses in the liver in patients treated with intensive irradiation and refer to the alterations in hepatic functional tests which are sometimes found after exposure to X-rays. We have lately noted a biphasic Van den Bergh reaction with an increase of the serum bilirubin in several patients so treated. Our observations on necroses in the liver of the guinea pig are therefore of some interest and to be compared with the findings of Warthin and Case.

Complete details of the above investigation will appear in our paper in *The Journal of Metabolic Research.*

References.

(1) G. E. Richards: "Possibilities of Roentgen Ray Treatment in Cancer of the Pancreas," *American Journal of Roentgenology*, 1922, Volume IX., page 150.

(2) R. R. Bensley: "Studies on the Pancreas of the Guinea Pig," *American Journal of Anatomy*, 1911-1912, Volume XII., page 297.

(3) H. Rolleston: "Acute Constitutional Symptoms due to Radiations," *The British Medical Journal*, January 6, 1923, page 1.

(4) W. F. Petersen and C. C. Saelhof: "Roentgen Ray Stimulation of the Pancreas in Experimental Pancreatic Deficiency," *The American Journal of the Medical Sciences*, 1922, Volume I., pages 163 and 391.

(5) H. P. Doub, A. Bolliger and F. W. Hartman: "Immediate Metabolic Disturbances Following Deep Roentgen Ray Therapy," *American Journal of Roentgenology*, 1925, Volume XIII., page 54.

(6) E. C. Dodds and J. H. D. Webster: "The Metabolic Changes Associated with X-ray and Radium Treatment," *The Lancet*, March 15, 1924, page 533.

(7) S. L. Warren and G. H. Whipple: "Roentgen Ray Intoxication: 2—A Study of the Sequence of Clinical, Anatomical and Histological Changes Following a Unit Dose of X-rays," *Journal of Experimental Medicine*, 1922, Volume XXXV., page 203.

(8) J. T. Case and A. S. Warthin: "The Occurrence of Hepatic Lesions in Patients Treated by Intensive Deep Roentgen Irradiation," *American Journal of Roentgenology*, 1924, Volume XII., page 27.

SINUSITIS AS A SOURCE OF DISEASE AND ITS EFFECTIVE TREATMENT.

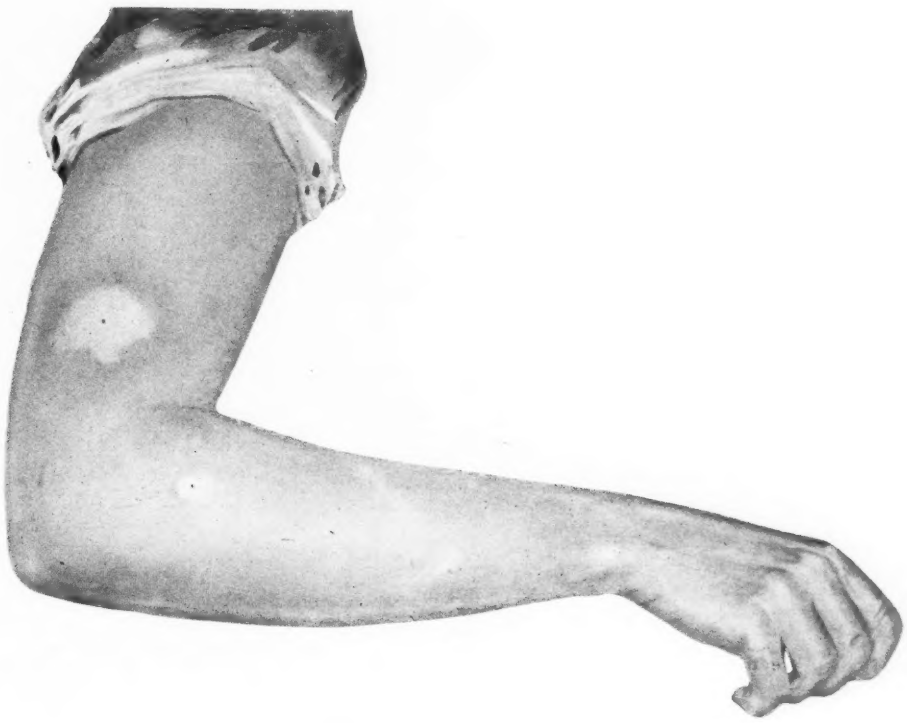
By SYDNEY PERN, M.R.C.S. (England), L.R.C.P. (London),

Physician to Out-Patients, St. Vincent's Hospital, Melbourne.

THAT much bodily harm can arise from the breeding of virulent bacteria within secluded nooks in our bodies is being generally accepted, but the extent of this damage in tissue destruction and resultant ill-health is far from being realized. In enlarging on this matter one is in danger of being considered over-enthusiastic, but in spite of such dangers I wish to bring before the notice of readers certain facts concerning sinusitis and its relation with disease, which perhaps being well known to the specialists in this branch, may not be so obvious to the majority of practitioners. Not being a rhinologist, but having made focal infections an especial study for some years, certain views have been formulated by me on the matter of nasal infections and I have found them very useful in diagnosis.

Although at first sight it may not seem so, the diagnosis of sinusitis is a comparatively simple matter and can be done with facility by those who are not specialists in that branch.

ILLUSTRATION TO THE ARTICLE BY
DR. H. R. DEW, DR. C. H. KELLAWAY AND MISS F. E. WILLIAMS.



A chronic post-nasal drip of a yellow or creamy coloured fluid which necessitates hawking the first thing in the morning, is quite sufficient evidence of some nasal infection. If this be associated with headaches which are worse in the morning, the sinuses must be involved. If there be a chronic discharge without headaches, one or other of the antra are probably involved. Together with this will be found a history of constantly recurring colds in the head, a stuffiness in the nose and an inclination to sleep with the mouth open. The practitioner may be questioned as to how he can tell that the muco-pus comes from the sinuses and not from the nasal mucosa. With an ordinary passing cold this may be possible, but improbable. The nasal mucosa being a continuous membrane, the lining of the sinuses is not likely to escape infection with an involvement of the rest. A free surface is unlikely to remain infected for long, as Nature tends to throw off infections where there is no impediment to the discharge. It does not matter if this is nasal mucosa or that lining the bronchial tubes, but in the presence of obstruction to the discharge chronic infection becomes readily established. With infection of the sinuses there is a tendency to swelling of the mucosa, resulting in closure of the ostia and consequent retention of infected material. When the pressure becomes sufficiently great the discharge is evacuated and the headaches which are the result of the tension, are temporarily relieved. This retention of infected material necessarily causes a good deal of toxic absorption and is responsible for symptoms of increased nervous irritability, tachycardia, palpitation and fatigability and is often accompanied by tremor and a feeling of ill-health. To depend on the results of washing out or of a skiagram alone is apt to be misleading and I have frequently seen patients pronounced to be free from sinusitis on skiagraphic evidence when there was a profuse yellow discharge of a chronic nature. Patients present themselves for treatment complaining of ailments in different parts of their bodies and as we are beginning to realize that all parts of the body, organs and tissues are liable to invasion from focal infections, it is incumbent upon us to locate and relieve them of these infections, if possible. A patient complaining of a pain in his foot will not volunteer the statement that there is some slight nasal catarrh, because as he has had it for a time, he is used to it and thinks that it is not worth mentioning. The headaches from which he suffers, are also attributed to some other cause.

The result of this is that unless one is very much on one's guard, these infections will be overlooked.

TABLE I.—PATIENTS WITH PULMONARY AFFECTIONS.

Disease.	Naso-Pharyngeal Condition.				Pulmonary Condition.	
	Sinus Affected.	Sinus and Tonsils Affected.	Cured.	Improved.	Cured.	Improved.
Bronchitis	10	1	5	1	4	1
Bronchitis and asthma	2	0	2	—	1	1
Chronic cough[1]	0	2	—	—	—	—
Influenza[1]	1	0	—	—	—	—
Asthma	2	0	2	—	2	—

[1] Patients not seen since.

TABLE II.—PATIENTS WITH CARDIAC LESIONS.

Number of Patients.	Naso-Pharyngeal Condition.				Cardiac Lesion.
	Sinus Affected.	Sinus and Tonsil Affected.	Cured.	Improved.	Greatly Improved.
5	2	3	5	—	5

TABLE III.—PATIENTS WITH GASTRO-INTESTINAL AFFECTIONS.

Disease.	Naso-Pharyngeal Condition.				Gastro-Intestinal Affections.	
	Sinus Affected.	Sinus and Tonsils Affected.	Cured.	Improved.	Cured.	Improved.
Duodenal ulcer	2	0	1	1	0	2
Gastritis	2	2	4	—	2	2
Cholecystitis and gall stones	1	1	2	—	1	1
Chronic appendicitis	1	0	1	—	1	0
Chronic enteritis	1	0	1	—	1	0
Diabetes	1	0	1	—	sugar free	

Being anxious to see how prevalent chronic sinusitis is, I went through the records of the last four hundred patients seen by me in the out-patient department of Saint Vincent's Hospital and found that about one in every four presenting themselves for medical treatment had chronic sinusitis of so obvious a type that no specialist could disagree with me on that point.

The patients attending my clinic are similar to those who attend other medical clinics except that I may get more with goîtres. It was these figures that prompted me to draw particular attention to this condition and also to show how in the majority of cases it can be most efficiently treated without operative interference. Having in the past experienced unsatisfactory results in my patients from operative treatment, I cast around for some other method in the hope of benefiting these patients. I had also found the use of vaccines unavailing. As I was using colloidal manganese about this time for other conditions, I tried it in some cases of sinusitis with quite remarkable results. I found it was almost a specific and that it usually cleared up the condition in a fortnight or three weeks and that from four to eight injections were generally sufficient to produce a cure. Since then I have employed it in some hundreds of cases with consistent results. It cures not only the focal infection, but also the diseased condition which results from that infection. I am not prepared to say how it acts. It may have a direct action on the flora of the nose or, by producing a rather free nasal discharge, it may produce a secretion having a high bacteriocidal action.

Of 391 patients examined 104 had sinusitis, being 26.5%. These figures are rather staggering, but I see no reason why other clinics should in any way differ from mine in the matter of nasal infections, as all these patients came for medical treatment. Having rather a large number of goître

TABLE IV.—PATIENTS WITH GOÎTRE.

Number of Patients.	Naso-Pharyngeal Condition.				Goître.	
	Sinus Affected.	Sinus and Tonsils Affected.	Cured.	Improved.	Cured.	Improved.
34	11	23	29	4	5	29

TABLE V.—PATIENTS WITH ARTHRITIS, NEURITIS, LUMBAGO AND SCIATICA.

Number of Patients.	Naso-Pharyngeal Condition.				General Disease.	
	Sinus Affected.	Sinus and Tonsils Affected.	Cured.	Improved.	Cured.	Improved.
11	3	8	6	—	5	3

TABLE VI.—PATIENTS WITH URINARY AND OTHER CONDITIONS.

Disease.	Naso-Pharyngeal Condition.				General Disease.	
	Sinus Affected.	Sinus and Tonsils Affected.	Cured.	Improved.	Cured.	Improved.
Pyelitis	1	0	1	—	1	0
Cystitis	0	1	—	—	—	—
Anæmia	0	4	4	—	2	2
Epilepsy	1[1]	—	—	—	—	—
Disseminated sclerosis	1	0	1	—	—	1
Hypothyreoidism	1	0	—	—	—	—
Enlarged cervical glands	1	0	—	—	—	—

[1] Patient just starting treatment.

TABLE VII.—PATIENTS WITH HEADACHE AND TOXIC POISONING.

Number of Patients.	Naso-Pharyngeal Condition.				General Condition.	
	Sinus Affected.	Sinus and Tonsils Affected.	Cured.	Improved.	Cured.	Improved.
19	11	8	12	1	10	2

patients, this might raise the incidence of sinusitis slightly, owing to the prevalence of sinusitis amongst them, but it would not make a great deal of difference.

In the following tables the age of the 109 patients, the date of coming under treatment, the disease from which they were suffering and the date of the clearing up of the sinus condition, as recorded on their medical history cards, are set out. At the time of drawing up these notes many were under treatment and their final condition is not recorded. Many, as is the case in all out-patient departments, do not come up when they find they are getting well and owing to this I am unable to record the final results.

The affections are classified as cardiac lesions, gastro-intestinal conditions, nerve and joint lesions, goîtres, lung conditions, toxic poisoning and headaches, urinary and other affections.

Until the advent of this treatment these patients would have had to undergo nasal operations with uncertainty of results and at least a long period of time spent in getting well. With such treatment there is the possibility of one or more sinuses remaining infected and the infection may spread to the detriment of the organ for which the organisms had a specific elective affinity. It occasionally happens that a bad cold will stir up an old infection which, if not clearing up in a short time, usually responds to a few more injections.

Of the eighty-six patients who were treated, seventy-nine or 91% were cured and the remaining seven were improved. One or two with antral affections required operation.

The incidence of pure sinus infections is very high (see Table I.), but if it is realized that the drainage from the sinuses is towards the mediastinal lymphatics, the infection when the lymphatics become involved, spreads along the bronchi causing hilus thickening as is seen also in phthisis. This infection, at first extra-bronchial, eventually becomes bronchial and chronic bronchitis is established.

One of these patients had chorea for four years as well as goître; both conditions cleared up (see Table II.).

One had auricular fibrillation for six months, which cleared up after her sinuses became automatically clear, as it was prior to my use of colloidal manganese. One girl with bad mitral stenosis improved wonderfully after her tonsils were removed and the sinusitis was cured.

Since these notes were made, I have had another very severe case of chorea with cardiac lesions. In about a month from starting the treatment, all movements had stopped and the patient's general condition vastly improved.

Of the patients with duodenal ulcers one was better than he had been for many months and one had an antral infection which possibly may require a radical operation (see Table III.).

Of the patients with cholecystitis one was cured and the other was very greatly improved when last seen. The man with chronic enteritis was cured after diarrhœa of two years' duration.

In this series we have a large number of infected tonsils and sinuses combined (see Table IV.). As it takes from nine to eighteen months for a goître to subside after the removal of a focal infection, the number of patients improving is large. All are benefiting and from past experience I anticipate that at the end of eighteen months the majority of the goîtres will either have disappeared or have subsided to such an extent as to be insignificant. All toxic symptoms will have ceased. It will be found that where toxic or exophthalmic goître has failed to respond after the removal of focal infections in situations like the tonsils, infected sinuses have usually been overlooked.

The most striking thing in this series is the predominance of mixed infection of tonsils and sinuses (see Table V.). Of twenty patients with lung lesions, fifteen had pure sinus infection.

That all the patients with anæmia had combined infections may or may not be of interest, the numbers being too small to justify conclusions being drawn (see Table VI.).

The symptoms complained of by the majority of these patients were headache, palpitation, increased nervousness and fatigability; they often included tremor (see Table VII.).

THE TASMANIAN SANATORIUM FOR CONSUMPTIVES.

By F. M. Lovett, F.A.I.S.,
Secretary.

The seriousness of a disease depends partly on the nature of the person who suffers, and secondly on the value of the treatment rendered in its alleviation.

Pulmonary tuberculosis is a disease of the lung and is caused through germs acquired from a sufferer of the disease whilst coughing and sneezing or by a person breathing in germs contained in rooms occupied or previously occupied by sufferers of consumption.

Too much work, worry, unhealthy domestic environment and other causes of a like nature will lower the strength of the human frame and consequently one is more likely to acquire the disease if run down in health.

The characteristic symptoms of consumption are cough and loss of appetite, strength and weight.

The Tasmanian Sanatorium for Consumptives was instituted to offer to people all over the State who may be suffering from tuberculosis, a chance of being improved or permanently cured by undergoing a complete system of open air treatment administered by a skilful medical and nursing staff in convenient buildings, surrounded by beautifully laid out grounds.

The necessary control of patients in sanatoria and the precautions taken in order to avoid the

danger to other inmates and the public generally, are strictly observed at the New Town sanatorium. A patient is under strict discipline to avoid coughing openly, to expectorate only into vessels specially provided or into rags issued as handkerchiefs, to carry out easy work according to their bodily health and capacity, take light walks for exercise with avoidance of fatigue in the open air, use moderation in smoking and to be temperate in the drinking of alcohol. Patients are taught to lead a regular and quiet life, to spend a reasonable part of time in bed and on lounges, to endeavour always to acquire a genial outlook on life, enjoy the sunshine and realize that their recovery rests largely with themselves in practising self-denial at the beginning, in order to appreciate the fact that this abnegation may become the deciding factor and eventually overcome the disease.

About two years ago the Indoor Rest Home was opened for the treatment of patients afflicted with the advanced stages of consumption. The buildings for the reception of these patients were erected and are maintained by the Government under the management of the Sanatorium Committee. They consist of a self-contained block of buildings some distance apart from the Sanatorium chalêts, the patients are treated in wards with adjacent verandahs and sun rooms, in contrast to isolated open air shelters, containing from one to six beds, used for patients who are afflicted with the early stages of the disease.

Both institutions are divided into separate sections for male and female patients and each has a separate block of administrative buildings and quarters for the nursing and domestic staffs.

Applicants for admission to the Sanatorium should obtain a certificate from one of the honorary medical officers stating he or she is suffering from the disease. Separate forms of application are used for each division and honorary medical officers and all country municipalities through the council clerks, have been supplied with a quantity of the necessary forms adopted by the Committee. So that if a person wishes to apply for admission the doctor's signature can be obtained without much trouble. The application is then submitted to the Secretary, who finally arranges for admission.

The maintenance fees range from five shillings to fifty shillings per week according to patients' ability to pay.

A declaration signed by three reputable residents in the district in which a patient resides, stating the maximum fees that he or she can afford will be accepted by the Secretary. No applications are refused on account of inability to pay even the minimum fees, if accompanied by the above declaration which is regarded as strictly confidential.

No distinction of any kind is made at the Sanatorium between any of the patients for the above or any other reason and all have to conform to the same routine and rules under jurisdiction of the Matron-in-charge.

These fees with Government subsidy and much generous assistance from the public of Tasmania enable the Committee to provide the necessary provisions and comforts to the patients, pay the salaries and wages of the nursing and domestic staff and provide for maintenance, office expenses and upkeep generally. The yearly expenditure is now about £6,000 for both establishments. One hundred and seventeen patients were admitted and treated last year. There are fourteen on the staffs, under the supervision of a matron, with a sister in charge at the Indoor Rest Home.

The management is directed by the Executive Committee and officers elected annually by the subscribers, the detail work being delegated to the Visiting and Finance Committee which present their reports to the Executive every month.

Weekly visits of inspection are made by the Secretary and the President and members of the Committee by periodical visits endeavour to keep in personal touch with the Matron, nursing staff and patients.

The Committee looks with confidence to the continued progress of this humane and philanthropic work which was inaugurated in 1905, some twenty years ago, when two tents were erected for the treatment of patients as against sixty-five up-to-date beds now available. Through all these years of struggle, financial worry and administrative problems the goal originally striven for has continually been kept in view. The splendid public spirit shown by members of the present and past committees of the institution who have at all times given ungrudging and zealous service in order to push forward and benefit the movement, speaks well for their national and civic virtues as citizens of the State.

Reviews.

THE LATE GEORGE E. RENNIE.

THERE are many graduates of the University of Sydney who realize their indebtedness to their old teacher, George Edward Rennie. A few were privileged to call him "friend." Many knew him as a skilled physician, a learned master, a wise counsellor. To all these a small volume has been addressed by a sometime patient and year-long friend of George E. Rennie. "A Beloved Physician" is a small volume of memoirs written from the heart.[1] It throws aside the veil of formality that shrouded Rennie's character and allows the man, the father, the husband, the friend as he really was, to be disclosed. The proceeds of the sale of the book are to be devoted to the establishment of a prize for students of medicine at the University of Sydney. Rennie loved the Medical School and his work in fitting his students for the onerous duties in their professional lives was one of his greatest joys. His friend has thus accomplished a doubly purposeful task. She has given Rennie's pupils and admirers reliable information about him in homely and pleasant garb and she has used the occasion to institute a prize for intellectual achievement in the study of medicine. Buy the book.

[1] "A Beloved Physician: Some Memories of Dr. George Rennie"; Sydney: R. Dey, Son and Company; 1925. Post 8vo., pp. 78. Price: 2s. 6d.

The Medical Journal of Australia

SATURDAY, MAY 9, 1925.

Maternity Benefit.

During the first eleven years of the operation of the *Commonwealth Maternity Allowance Act* nearly seven and three-quarter million pounds sterling was paid to mothers in Australia as the five-pound baby bonus. Practically every woman who has had a viable child since July 1, 1913, has claimed the bonus. Many have claimed it unjustly and an attempt has been made to detect these false applications. Each year a certain number of claims are refused. The Royal Commissioners in their report on national health insurance call attention to the fact that the puerperal mortality and the infantile mortality have remained practically undiminished between 1905 and 1924. The former is given as 5.1 per thousand registered births; the latter is given as 60.5 per thousand births. It is true that there has been a reduction in infantile deaths since 1905 from 81.8 per thousand births, but the deaths of infants under one year of age has not changed. The commissioners also point out that in 1913-1914 64% of the mothers were attended by medical practitioners and in 1923-1924 79% of the mothers had the help of doctors. In spite of the material increase in the frequency of attendance by trained medical practitioners, the puerperal mortality has not diminished. There is no information concerning the number of babies born dead, but the number born alive who did not survive their first birthday, has remained uninfluenced by the increased medical attendance. At first sight these facts would appear to indicate that medical practitioners have failed in the discharge of a responsible duty. Further inquiry, however, brings to light some important and relevant events. In the first place attendance by a medical practitioner is recorded when the practitioner is called in after a midwife or untrained woman has got into difficulties and possibly infected the woman. In the next place medical practitioners are frequently called upon to give the attendance in an environment and under circumstances which are wholly unsuited for safe obstetrics. Lastly it avails but little if skilled medical attendance is given at the time of the confinement to a woman whose physical condition demanded medical care earlier in the pregnancy. Antenatal supervision is not given to the majority of the women of Australia.

That the maternity bonus has failed in its objective is a contention that has been made very many times in these columns. The Federal Committee of the British Medical Association in Australia has suggested certain remedies for the waste of maternal life and health and for the sacrifice of infantile life. These remedies include the better training in obstetrics of medical students and of obstetric nurses, the extension of maternity hospitals, antenatal clinics and infant welfare centres and the provision of help for mothers and expectant mothers in necessitous circumstances. The commissioners now recommend an extension of the bonus system in a slightly changed form. They suggest that female insured persons and the wives of insured men should receive one pound a week for two weeks before and for four weeks after confinement. We assume that this means that the payment is not to be made to persons who are not required to be insured. There is so far no definition of the person to be insured. If it is intended to set up an income limit, the exclusion from the benefit of persons with wages or salaries above the fixed amount would be a step in the right direction. But the commissioners have given no indication that this restriction is intended. They deal exclusively with the wage and salary earners and leave the unemployed and unemployable out of consideration. Are persons in necessitous circumstances to be deprived of assistance? It may be politically expedient to provide assistance for the great mass of voters, but surely the most urgent and most important objective of financial assistance is the person without means.

The commissioners deal in the chapter on institutional treatment with maternity hospital accommodation. They admit the inadequacy and consider that the establishment of more maternity hospitals is necessary in the interests of women and children.

The recommendations are of a general nature. Whether the commissioners had any definite plan in regard to the provision of adequate hospital accommodation for women in childbirth and of clinics for antenatal supervision of mothers and postnatal care of infants or not cannot be gleaned from the report. It is easier to propose "effective coordination of the various services operating under the maternity scheme" than to devise the necessary machinery.

The commissioners also dsicuss maternal hygiene and child welfare in connexion with the preventive health services. They do not inspire confidence when they cite in parrot fashion five principal causes of maternal death in childbirth. The Obstetrical Committee of the Victorian Branch of the British Medical Association have adopted a far sounder and more scientific attitude in their endeavour to ascertain the actual processes at fault. They realize that more information is needed before positive statements can be made concerning the causes of morbidity and mortality in mothers and mortality in infants. Notwithstanding this assumption of excessive confidence, the recommendations that skilled assistance should be available to all mothers before, during and after labour and that improved legislation should be introduced in regard to the registration of obstetric nurses and the control of private maternity hospitals, must receive universal approval. It is questionable, however, whether the health departments should be the official agencies charged with the supervision and direction of maternal hygiene.

Current Comment.

THE ESTIMATION OF HEPATIC FUNCTION.

It is often impossible to determine the beginnings of a pathological process by clinical examination. There may be no symptoms at all or only general symptoms of an indefinite character may be present. Physical examination may reveal little or nothing to indicate to the practitioner that a particular organ or tissue is disordered. It is true that the experienced physician may obtain a shrewd suspicion of what is happening in the body of his patient and almost by intuition he may make a correct provisional diagnosis. But it is unsafe to rely on impressions, more particularly because very few practitioners have the gift of forming reliable opinions on such shadowy evidence. In these circumstances the physiologist is constantly searching for some indirect method of estimating the functional activity of organs and tissues and endeavouring to ascertain whether slight disturbances of function cannot be detected by these indirect means. The application of the test meal and the biochemical examination of the stomach contents have assisted clinicians in arriving at a timely diagnosis of many pathological processes involving the stomach, while treatment may still produce good results. In a similar manner the renal function tests have proved themselves invaluable in disclosing the condition of each kidney as an independent organ. There are many other tests which have been devised as a result of physiological study and which yield reliable information that cannot be obtained by more direct methods of investigation.

It has long been known that when certain dyes are introduced into the body, they are excreted by the kidneys at a rate that undergoes but little variation as long as the organ remains healthy. These dyes are soluble in water. In 1922 S. M. Rosenthal argued that if the water-soluble dyes could be used as a measure of the functional health of the kidney, the fat-soluble dyes should yield similar information concerning the liver. He therefore introduced the phenol-tetrachlor-phthalein test. He found that the dye could be discerned in the blood fifteen minutes after the intravenous injection of five milligrammes of this dye for each kilogram of body weight in a 2% to 6% solution; after one hour all traces had disappeared. When the liver is diseased considerable amounts of the dye are found in the blood several hours later. Dr. A. Gonzales and Dr. W. G. Karr have employed this test in a substantial series of pathological processes and have also used the so-called hæmoclastic test.[1] The latter is the outcome of the work of Widal, Abrami and Iancovesco who demonstrated that the absorption of proteose compounds disturbs the colloidal balance of the blood and causes a raising of blood pressure, a decrease in the coagulability of the blood, an increased refractive index of the serum and a leucocytosis. When the liver cells are impaired, the reverse effects are noted. This is known as the hæmoclastic reaction. In practice the test is carried out by determining the leucocyte content of the blood, then giving the patient a glass of milk to drink and subsequently noting the variations in the leucocyte count during the following two hours. Drs. Gonzales and Karr have applied both tests to persons with normal hepatic function and to patients with hepatic congestion, new growths of the liver, cholecystitis, cirrhosis, Banti's disease, amyloid disease of the liver and lymphatic leuchæmia It became evident to them that unlike the kidney the liver has a very large margin of safety. Only a relatively small proportion of the liver cells are in action at any given time. The

[1] *Archives of Internal Medicine*, September 15, 1924.

material passing through the liver is much smaller than that passing through the kidney, but the amount of excretory tissue is far greater. It is therefore improbable that a slight or early disturbance of the liver would be manifested by the tests. Nevertheless both tests yielded typical results in the majority of the patients with impaired hepatic cells. The hæmoclastic reaction is perhaps more sensitive than the phenol-tetrachlor-phthalein excretion. At times the results of the two tests were not in accord. No explanation of the discrepancy could be ascertained. From the data published, it would appear that both tests are worthy of an extensive trial. They may be found to be of considerable diagnostic and prognostic value in obscure or early hepatic conditions.

THE DIAGNOSIS OF MALIGNANT DISEASE OF THE THYREOID.

The mortality associated with malignant disease of the thyreoid is very high and the reason probably lies in the fact that correct diagnosis in the early stages is as unusual as it is difficult. There are several reasons why this is so. In the first place simple goître is a relatively common condition, more especially in endemic areas. Malignant change may occur in the centre of a simple goître to which the patient has been accustomed for years. The increasing hardness of the swelling may not attract his attention until the condition is well advanced. Moreover, hardness in a thyreoid enlargement is not always indicative of malignant disease; calcification, though rare, may confuse the issue. On the other hand it has been claimed that metastases may occur as a result of a benign growth of the thyreoid in parts of the body far removed from the gland. Cohnheim's observations were to a large extent instrumental in the propagation and the partial acceptance of this teaching. This question was considered in our issue of March 7, 1925. It has by no means been proved that such an occurrence is possible. If such a view is accepted, it endows tissue of the thyreoid gland with properties possessed by no other tissue in the body.

The question of diagnosis of thyreoid tumours cannot be adequately considered apart from that of their pathological classification. Wilson pointed out that apart from hyperæmia and inflammatory deposits thyreoid enlargements as seen at operation or autopsy are due either to storage of secretion or proliferation of tissue or to both. If caused by storage of secretion, the tumours are colloidal goîtres. If due to diffuse proliferation of normal adult tissue associated with hyperfunction, they are exophthalmic goîtres. If due to circumscribed proliferation of parenchymatous tissue, they are adenomata. If these adenomata remain perfectly encapsulated and if they cease to proliferate and gradually degenerate, they are benign in the sense that they do not invade surrounding structures and produced no metastases. If adenomata continue to proliferate rather than degenerate, they may penetrate the capsule, invade surrounding tissues and cause metastases. These proliferating adenomata thus might or might not be malignant and histologically it is impossible to differentiate the two. The only reliable marks of distinction are details which indicate the predominance of either proliferation or degeneration. He concluded that an adenoma of the thyreoid of any appreciable size which is composed of embryonal tissue in a person of cancer age and which is found on histological examination to be in a state of active proliferation, is potentially malignant, even though contained entirely within its capsule.

In a recent discussion on the diagnosis of malignant disease of the thyreoid gland before the Royal Society of Medicine,[1] Mr. James Berry said that surgical diagnosis consisted in the main of the application of common sense to a good foundation of anatomical and pathological knowledge. A malignant tumour penetrating the thyreoid capsule on its inner side quickly becomes incorporated with the trachea. Although a malignant goître still follows the movements of the trachea in deglutition, it cannot be moved upon the trachea, as innocent goîtres almost invariably can, unless they are inflamed. He also drew attention to the anatomical relationship of the recurrent laryngeal nerves, the pharynx and the blood vessels of the neck to malignant tumours of the thyreoid. From the pathological point of view he laid stress on the common degenerations of fibrosis and calcification as seen in innocent goîtres. The presence of a small hard lump of recent growth in the thyreoid of a middle-aged or elderly person should always arouse suspicion of malignant disease. It can often be proved that such a swelling is not malignant and a great majority of small hard tumours in the thyreoid are usually either old fibrous or calcified masses or else they are cysts. The main points in the diagnosis are the smoothness of the surface of the gland and the aspect of the patient. He did not approve of the doctrine that all adenomata of the thyreoid should be removed whether they are giving rise to trouble or not merely because they may possibly become malignant. He had removed solid adenomata three hundred and seventy-three times and only four of the tumours had been malignant.

Mr. T. P. Dunhill divided malignant tumours of the thyreoid into three classes. The first group consists of tumours which are obviously malignant. The second group consists of cases in which the diagnosis can be made only by microscopical examination after removal of the tumour. He held that pathological examination of thyreoid material is on a sufficiently sound basis for the diagnosis of malignant disease; he justifies his opinion by referring to five patients who had died of recurrence. The third group consists of cases in which there is an enlargement of the thyreoid gland together with progressive enlargement of masses in the neck separate from the thyreoid. He was not prepared to speak definitely about the significance of this group.

[1] *Proceedings of the Royal Society of Medicine*, March, 1925.

Abstracts from Current Medical Literature.

GYNÆCOLOGY AND OBSTETRICS.

Gabaston Method of Separation of the Placenta.

H. KATZ (*Wiener Medizinische Wochenschrift*, January 10, 1925) has employed the method of Gabaston for separation of the placenta in fifty cases, forty after normal and ten after operative labour. The indications were *post partum* hæmorrhage, retention of the placenta or a combination of both. The simple technique consists in the injection of two hundred to three hundred cubic centimetres of sterile normal saline solution into the umbilical vein after it has been severed. The author obtained success in 30% of his series. In no instance was there any complication in the puerperium. He considers that the method is of great use in cases of slightly adherent placenta as well as simple retention. Failure is to be expected whenever the placenta is densely adherent or in an abnormal position.

Vaginal Amputation of the Uterine Body.

L. MANDL (*Wiener Medizinische Wochenschrift*, November 15, 1924) describes amputation or resection of the body of the uterus through the vagina. He reserves it for patients in whom the uterus is not too big, in whom the vagina is capacious and in whom no tubal or ovarial complications exist. In three cases it was performed for pulmonary tuberculosis associated with pregnancy. The amenorrhœa produced besides preventing future pregnancies would have a beneficial effect on the pulmonary lesion. In eighteen patients suffering from menorrhagia or metrorrhagia conservative treatment including radiology had been unsuccessful. The majority were suffering from fibroids and none had any inflammation of the appendages. All were cured. The author concludes that though the indications for this operation are somewhat restricted, it has still a definite place in the treatment of many gynæcological conditions.

The Use of the Parametrial Clamp in Severe Uterine Hæmorrhage.

W. S. FLATAU (*Münchener Medizinische Wochenschrift*, November 14, 1924) discusses the use of the parametrial clamp for severe cases of uterine hæmorrhage. One blade is inserted into the cervix and the other over the parametrial tissue. A strong clamp such as Doyen's for vaginal hysterectomy must be used. The effect is immediate and the clamp can be removed next day. No lesions of the ureter or bladder have been observed by the author. He gives details of two cases of severe accidental hæmorrhage. In these after the third stage of labour severe bleeding occurred which could not be controlled by the usual methods. The patients were too collapsed to allow of the consideration of hysterectomy.

Resection of the Sacral Promontory.

L. FRAENKEL (*Klinische Wochenschrift*, September 30, 1924) describes the case of a woman with a flat pelvis with a *conjugata vera* of 6.5 centimetres. At the first labour great difficulty was experienced with the aftercoming head and following on puerperal fever there was a fixed retroversion. While operating for this he noticed that the sacral promontory was very prominent. As the woman desired a child naturally, he resected a wedge 2.5 centimetres by 1.5 centimetres. She became pregnant and was delivered easily of a normal sized child. There was no callus formation. In conclusion, he gives a review of thirty-three cases in the literature.

Pelvic Varicocele.

C. A. COSTANO (*Surgery, Gynecology and Obstetrics*, February, 1925), has reviewed the literature regarding varicosities of the veins of the broad ligaments. In his own series of cases he found that all the patients were syphilitic. He considers the underlying pathological factor to be a syphilitic sclerosis of the walls of the veins. The symptoms they cause are four, dyspareunia, erotic pain, dysmenorrhœa and leucorrhœa of the hydrorrhœic type. The varicosities are palpable when the patient stands upright, but disappear when the patient is in the Trendelenburg position. His treatment is surgical. He exposes the ovarico-pelvic fold, splits it open, isolates the big venous trunks, ligates them in two places two centimetres apart and cuts out a segment and he then closes the peritoneum with five sutures.

Inflammation of the Human Ovum and the Early Development of the Trophoblast.

JOHN H. TEACHER (*Journal of Obstetrics and Gynæcology of the British Empire*, Summer Number, 1924) describes a very early human ovum (Bryce-Teacher Number II. or T.B. 2) discovered *post mortem*. It is a little larger than Peter's ovum and is in a state of perfect preservation. The blastocyst is 2.6 millimetres. The author has undertaken the description of the implantation of the ovum and the development of the trophoblast. He also describes the method of examination adopted and his observations are given at length. He concludes that the human ovum burrows into the endometrium like a vigorous parasite destroying maternal tissue and provoking inflammatory and reparative reaction. The closure of the *decidua capsularis* (*reflexa*) is effected by an apparatus developed from the last entering cells of the ectoderm of the ovum. This becomes united with the uterine epithelium and later with the other tissue of the lips of the aperture of entrance. For it the term *operculum deciduæ* is suggested. The recognition of this apparatus had led to the discovery that in the human ovum there is a polar structure similar to that seen in the guinea pig and hedgehog. The ovum is therefore described as having an entering or implantation and an adhering or closing pole. This polarity determines the position of the embryonic rudiment in the blastocyst and the situation of the placenta. The operculum usually becomes detached from the blastocyst and degenerates when its functions of closure of the aperture of entrance and temporary fixation of the ovum have been fulfilled. When the reparation occurs, an "internal shield" of fibrin is formed by thrombosis in the implantation cavity and closes the aperture of entrance from within. In some cases the operculum remains attached to the blastocyst and an internal "closing coagulum" may form over it. The conception formed in 1908 that there are two generations of trophoblast (a primitive or implantation trophoblast and a secondary or attaching or placental trophoblast) is found to be justified. Much of the syncytial part of the primitive trophoblast disappears when its functions of forming the implantation cavity and opening the maternal vessels have been discharged. The rest of it and the primitive cytotrophoblast develope into the placental trophoblast and in the first place are concerned with the attachment of the ovum and the formation of the intervillous space and proper channels between it and the maternal circulation eventually becoming the chorionic epithelium.

The Function of the Ovary.

ROBERT T. FRANK (*American Journal of Obstetrics and Gynecology*, November, 1924) contributes his fourth paper on the function of the ovary, covering advances in knowledge of this subject from 1911 to 1924. He concludes that the primary development of the female genital organs which include the mammary gland, depends on the action of the hormone elaborated by the growing follicle. The *corpus luteum* hormone produces a periodic accentuation of this effect and prolongs the growth stimulus during the early part of pregnancy. The placenta produces further development of the genital organs in pregnancy. The follicle hormone produces the "premenstrual" or "pregravid" uterine change. If no pregnancy occurs, as soon as the *corpus luteum* becomes functionless, the hypertrophic uterine mucosa, analogous to rapidly growing embryonic tissue when the nutrition becomes impaired, breaks down, is exfoliated and bleeding (menstruation) then results. The periodicity of menstruation is due to the fact that after the

follicle has ripened, causing the pregravid change, ovulation takes place and the *corpus luteum* inhibits other follicles from developing until the yellow body grows inactive. Ovulation in the human female has been observed as early as one day and as late as eighteen days after the cessation of the menses. No function appears connected with the female interstitial gland.

NEUROLOGY.

A Modified Lipiodol.

J. A. SICARD AND LÉON BINET (*Revue Neurologique*, December, 1924) by dissolving a small quantity of the original "Lipiodol" in purified olive oil have succeeded in obtaining a fluid of lighter specific gravity which floats to the surface instead of sinking in water, casts a good shadow with X-rays and is specially useful for locating the lower limit of a spinal compression. One cubic centimetre of this "ascending" lipiodol, as the authors call it, is introduced by ordinary lumbar puncture, with the patient in the sitting posture. No fluid is withdrawn and the needle is left *in situ* for from three to five minutes after the injection is made. Under normal circumstances the fluid ascends to the brain and does no harm. When a tumour of the cord or other obstacle exists the fluid is arrested and a radiogram in the erect posture will show its exact level.

On the Occurrence of Fits in Syringomyelia.

J. P. MARTIN (*Journal of Neurology and Psychopathology*, November, 1924) has noted fits in four patients with syringomyelia out of a total estimated at close on thirty. An important point is that the fits are tonic in character. They occur during or just before periods of active progression of the disease and are therefore of unfavourable prognostic significance. They are accompanied by symptoms of increased intra-cranial pressure and are probably due to acute exacerbations of internal hydrocephalus. It would thus appear that in certain cases periods of rapid aggravation of syringomyelia are associated with exacerbations of hydrocephalus.

Parkinsonian Syndromes in Encephalitis Lethargica and Paralysis Agitans.

ALFRED GORDON (*Journal of Nervous and Mental Diseases*, November, 1924) compares the clinical pictures in *encephalitis lethargica* and *paralysis agitans*. In post-encephalitic Parkinsonism there is a predominance of hypertonia over tremor, whereas in *paralysis agitans* the tremor is the dominant feature. In the former again the hypertonia chiefly and strikingly affects the facio-cervico-brachial region. In the classical *paralysis agitans* it is uniformly spread over the body. The facies also presents differences. In the encephalitic patient the orbits are not widely open and the face does not give the impression of fright, surprise or anxiety, as in ordinary *paralysis agitans*. Further the tremor in the encephalitic patient is slight, fine, rapid and fugacious, horizontal or vertical; in *paralysis agitans* it is coarse, not rapid, constant and pill-rolling in character. Another differentiating point is that encephalitic patients may manifest the choreiform twitchings, myoclonus, bradykinetic movements and so on peculiar to the disease.

Benign Extra-Vertebral Tumours With Spinal Symptoms.

CHRISTIAN J. ROHWER (*Journal of Neurology and Psychopathology*, November, 1924) in the study of the course, symptoms and signs of three benign extra-vertebral tumours with involvement of the spinal cord, noted several features which stood out prominently. (i.) The lesion, that is the tumour, had existed for a comparatively long time before definite spinal cord symptoms arose. (ii.) In two of the three patients the first abnormal sign was sudden collapse to the ground without premonitory discomfort and only one of the patients experienced pain which is a common symptom of most other varieties of spinal cord tumour. Later in all cases signs of compression appeared. (iii.) Extra-vertebral masses were demonstrable in the three patients. In two they were visible externally and could be easily palpated; in the third a shadow was distinctly to be seen in the radiogram. (iv.) The growths were benign; two were diagnosed pathologically as neuro-fibromata, the other as cellular fibroma. (v.) Two of the growths were pear-shaped, the thin end insinuating itself intra-vertebrally. (vi.) The growths occurred in the second and third decades of life.

Tetanoid Spasms in Encephalitis Lethargica.

W. STERLING, of Warsaw (*Revue Neurologique*, November, 1924) points out that while choreiform, myoclonic, athetotic and other forms of movement are often met with in *encephalitis lethargica*, the occurrence of tetanoid spasms is infrequent. He has collected ten cases. In most of these the condition arose during the acute stages of the illness. In one patient the left leg was immobilized during a period of three weeks by a spasm which was exceedingly painful and did not ease off during sleep and was not influenced by narcotics (morphine and scopolamine). Another subject was afflicted by attacks of acute and painful flexion at the elbow joint lasting several hours. In another the spasm affected the muscles of the thumb. Then in addition to cases in which the limbs were affected, he describes examples of facial hemispasm. One of these was peculiar inasmuch as the spasm arose as an after effect instead of during the acute illness. He regards as more remarkable still a case of temporary lock-jaw simulating tetanus. In looking for an anatomical explanation of these phenomena the writer thinks of an interference with extra-pyramidal tracts.

Amyotrophic Lateral Sclerosis and Bulbar Paralysis in the Child.

LUDO VAN BOGAERT (*Revue Neurologique*, February, 1925) records a case in which typical signs of amyotrophic lateral sclerosis abruptly showed themselves in a child of fourteen years by affection of the right lower limb; eight months later all four limbs were attacked. The first indications of bulbar trouble made their appearance one year after the initial affection and consisted of speech difficulty, facial paresis, trouble in swallowing, ophthalmoplegia and finally dyspnœa which was the cause of death twenty-three months after the disease began. The disease had a steplike progression and each step was accompanied by a period of pyrexia. In the first half of the illness the affection of the limbs and the signs of bulbar involvement resembled what occurs in adult cases. But at a later stage the bulbar affection was peculiar inasmuch as it extended to the nuclei of the third, fourth and sixth cranial nerves, so causing complete ophthalmoplegia. Microscopical examination revealed characteristic changes and amply confirmed the clinical diagnosis.

Asthma, Hay Fever, Nasal Hydrorrhœa Angioneurotic Œdema.

C. B. WILLIAMS (*Laryngoscope*, January, 1923) makes a study and comparison of a number of cases of asthma, hay fever, nasal hydrorrhœa and angioneurotic œdema and thinks that they are all vasomotor disturbances having a common ætiology. Further he sees no reason why certain cases of eczema, urticaria, migraine, sympathetic disturbances of the nasal ganglion and some gastro-intestinal crises hitherto considered of obscure origin might not be included with them. In summary he says that evidence as to the ætiology of those vasomotor disturbances known as bronchial asthma, hay fever, nasal hydrorrhœa and angioneurotic œdema seems to be leading to the following conclusions: (i.) That they are symptoms only; (ii.) that they are of anaphylactic origin; (iii.) that protein sensitization is responsible for the precipitation of attacks in a large percentage of cases, if not in fact the cause in many; (iv.) that disharmony of the ductless glands possibly plays an important rôle; (v.) that exposure to cold sometimes leads to a hæmoclastic shock which in turn may precipitate an attack of spasmodic coryza or others of these vasomotor disturbances; (vi.) that foci of infection, particularly about the head, should always be sought.

British Medical Association News.

ANNUAL MEETING.

THE ANNUAL MEETING OF THE TASMANIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Museum, Hobart, on February 21, 1925, DR. D. H. E. LINES, the Vice-President, in the chair. Owing to the unavoidable absence of the President, no address was delivered.

ANNUAL REPORT OF THE COUNCIL.

The annual report of the Council was presented by the Honorary Secretary and was received.

Annual Report of the Council.

Eleven ordinary meetings of the Branch were held with an average attendance of fourteen. One special meeting was held with an attendance of eighteen.

Twenty-two meetings of the Council were held with an average attendance of 5.8.

Launceston General Hospital.

The most gratifying occurrence of the year is that of the return to the honorary system at the General Hospital, Launceston. It is to be hoped that shortly there will be a full honorary staff and that all minor details and difficulties will be smoothed out.

Post-Graduate Work

A sub-committee consisting of Dr. D. H. E. Lines, Dr. J. H. B. Walsh and Dr. E. A. Rogers was appointed to make efforts to have established at the University of Hobart a dissecting room and pathological museum where men could do post-graduate work. It is hoped that in time this will be a most useful adjunct to the profession.

The University has placed quarters, with gas, electric light and water at the disposal of the Branch and if the Branch is able to secure lectures by distinguished visitors, the University will also provide seating accommodation.

The last difficulty in the way of the scheme was removed when the authority of the Government was obtained for the carrying out of such work.

Friendly Societies.

An effort was made to increase the *per capita* fees from friendly societies. After a conference with the friendly societies' delegates it was decided to await the final deliberations of the Royal Commission on National Health Insurance.

Further efforts have been made to have established in Hobart a hospital on the lines of the Lewisham Hospital, Sydney, and the signs are hopeful.

ELECTION OF OFFICE-BEARERS.

The Vice-President announced the result of the election of the office-bearers and members of the Council:

President: Dr. J. Ramsay, C.B.E.

Vice-President: Dr. T. Butler.

President-Elect: Dr. E. Brettingham-Moore.

Members of the Council: Dr. J. Stoddard Barr, Dr. H. Butler, Dr. F. Fay, Dr. L. Gollan, Dr. H. Sweetnam.

Honorary Treasurer: Dr. E. A. Rogers.

Honorary Secretary: Dr. A. W. Shugg.

FINANCIAL STATEMENT.

The Honorary Treasurer submitted the balance sheet and moved its reception. The motion was carried.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected as members of the New South Wales Branch of the British Medical Association:

Emmett, John Albert, M.B., Ch.M., 1925 (Univ. Sydney), Leichhardt Street, Leichhardt.

Fitzgerald, Augustine Joseph, M.B., Ch.M., 1924 (Univ. Sydney), c.o. D. Ireland, Esq., Duncan Street, Maroubra Bay.

Gatenby, George, M.B., B.S., 1898 (Univ. Edinburgh), 204, Miller Street, North Sydney.

Lewis, Arthur Raymond, M.B., Ch.M., 1924 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

McKay, Frances Christina Burrell, M.B., Ch.M., 1924 (Univ. Sydney), 57, Queen Street, Auburn.

Moppett, Warnford, M.B., Ch.M., 1923 (Univ. Sydney), "Wilga," The Crescent, Vaucluse.

Murphy, Eric Lascelles, M.B., Ch.M., 1923 (Univ. Sydney), 44, Victoria Parade, Manly.

O'Donnell, James Michael Antony, M.B., Ch.M., 1924 (Univ. Sydney), 369, Marrickville Road, Marrickville.

Pittar, Yorke Edward, M.B., Ch.M., 1921 (Univ. Sydney), Hampton Court, Darlinghurst.

BRITISH MEDICAL ASSOCIATION: TASMANIAN BRANCH.

Receipts and Expenditure for the Year Ended December 31, 1924.

RECEIPTS.

	£	s.	d.
Balance from 1923	283	17	0
Members' Subscriptions	294	8	3
Refund from Headquarters	14	2	0
Bank Interest	12	7	3
	£604	14	6

PAYMENTS.

	£	s.	d.
Hire of Rooms	20	0	0
Printing, Stationery, Postage	45	10	5
Clerical Aid	4	14	6
Payments for THE MEDICAL JOURNAL OF AUSTRALIA	93	0	0
Attendant at Rooms	6	0	0
Federal Committee Expenses	7	17	0
Federal Delegates	16	12	6
Remittances to Headquarters	107	15	6
Debentures in The Australasian Medical Publishing Company, Limited	75	0	0
Balance at Hand	228	4	7
	£604	14	6

C. BENNETTO,
Auditor.

E. A. ROGERS,
Honorary Treasurer.

Quinn, Thomas Robert, M.B., Ch.M., 1925 (Univ. Sydney), Roseville Chase, Roseville.

Sherwood, Norman Leslie, M.B., Ch.M., 1925 (Univ. Sydney), 1, The Austral, Lamrock Avenue, Bondi.

Solomons, Noel Simon, M.B., Ch.M., 1925 (Univ. Sydney), No. 1, Milton Hall, Kidman Street, Coogee.

Vickery, Donald George Roberts, M.B., Ch.M., 1923 (Univ. Sydney), "Edina," Victoria Road, Bellevue Hill.

Wilson, James Newell Hunton, M.B., Ch.M., 1925 (Univ. Sydney), 42, Bay Street, Rockdale.

THE undermentioned has been elected as a member of the Queensland Branch of the British Medical Association:

Thompson, John Cyril, M.B., Ch.M., 1924 (Univ. Sydney), Sarina.

THE undermentioned have been elected as members of the Victorian Branch of the British Medical Association:

Armstrong, William, M.B., B.S., 1924 (Univ. Melbourne), Simpson Street, Kyneton.

Brown, Donald Montague, M.B., B.S., 1924 (Univ. Melbourne), Alfred Hospital, Prahran.

Pender, Ian Basil, M.B., B.S., 1921 (Univ. Melbourne), St. Kilda Road, Melbourne.

Medical Politics.

NATIONAL HEALTH INSURANCE.

(*Continued from Page* 469.)

Sickness Benefit Recommended.

In order that the question of the amount of benefit payable under a national insurance scheme in Australia might be fully considered, your commissioners realized that it was essential that actuarial tables should be available, showing the weekly rates of contribution required to provide each of the several benefits under consideration. Mr. C. H. Wickens, F.I.A., F.S.S., Commonwealth Statistician and Actuary and President of the Actuarial Society of Australasia, at our request undertook the preparation of the various actuarial statements required, which are included in this report.

The weekly rates of contribution required to provide a sickness benefit of 20s., 30s. and 40s. per week during the first six months of sickness are shown in the accompanying table.

The above rates provide for the payment of a sickness benefit during the first six months of sickness, but not for any sickness experienced after age sixty-five in the case of males or after age sixty in the case of females and are computed on the assumption that contributions are not payable while the person concerned is in receipt of any benefit payable under the scheme.

After consideration of the circumstances associated with sickness benefit payable under the various national and mutual schemes of which particulars are available, your commissioners recommend:

(i.) That a sickness benefit of 30s. per week be payable to adult insured members during the first six months when incapacitated for work as the result of sickness;

(ii.) That a sickness benefit of not exceeding 20s. per week be payable to insured members under twenty-one years of age during similar incapacity.

SICKNESS BENEFIT—WEEKLY RATES OF CONTRIBUTION.

Age at Entry.	Males (to Age 65), Per Week.			Females (to Age 60), Per Week.		
	20s. d.	30s. d.	40s. d.	20s. d.	30s. d.	40s. d.
16	4.1	6.2	8.2	4.0	6.0	8.0
17	4.1	6.2	8.2	4.0	6.0	7.9
18	4.1	6.2	8.2	4.0	5.9	7.9
19	4.1	6.2	8.2	3.9	5.9	7.9
20	4.1	6.2	8.2	3.9	5.9	7.9
21	4.1	6.2	8.2	3.9	5.9	7.9
22	4.1	6.2	8.2	3.9	5.9	7.9
23	4.1	6.2	8.3	3.9	5.9	7.9
24	4.2	6.2	8.3	4.0	5.9	7.9
25	4.2	6.3	8.4	4.0	6.0	7.9
26	4.2	6.3	8.5	4.0	6.0	8.0
27	4.3	6.4	8.5	4.0	6.0	8.0
28	4.3	6.5	8.6	4.1	6.1	8.1
29	4.4	6.5	8.7	4.1	6.1	8.2
30	4.4	6.6	8.8	4.1	6.2	8.3
31	4.5	6.7	9.0	4.2	6.3	8.4
32	4.5	6.8	9.1	4.2	6.4	8.5
33	4.6	6.9	9.2	4.3	6.4	8.6
34	4.7	7.0	9.4	4.3	6.5	8.7
35	4.8	7.2	9.5	4.4	6.6	8.8
36	4.9	7.3	9.7	4.5	6.7	9.0
37	4.9	7.4	9.9	4.5	6.8	9.1
38	5.0	7.6	10.1	4.6	6.9	9.2
39	5.1	7.7	10.3	4.7	7.0	9.4
40	5.2	7.9	10.5	4.8	7.2	9.6
41	5.3	8.0	10.7	4.9	7.3	9.7
42	5.5	8.2	10.9	4.9	7.4	9.9
43	5.6	8.4	11.2	5.0	7.6	10.1
44	5.7	8.6	11.4	5.1	7.7	10.3
45	5.9	8.8	11.7	5.3	7.9	10.5

Accident Benefit.

Australian Accident Experience.

Any inquiry with respect to provisions for casual sickness and permanent invalidity must necessarily involve the question of the provision of benefits to the wage-earner when he is incapacitated as the result of accident. Although workers' compensation legislation provides for accidents traceable to industry, yet there are many cases of accident which cannot be so defined. These also throw a heavy burden upon the wage-earner, thus necessitating that some provision should be made under national insurance for such circumstances. The provision of sickness benefit by friendly societies includes the payment for incapacity as the result of accident and the foregoing statement as to sickness experience and benefits in friendly societies includes those relating to accident. It is not possible to obtain particulars for accidents separately, as no such analysis of friendly society records has yet been undertaken.

A large number of deaths in Australia are due every year to accidents and male deaths predominate. In 1923 the deaths from accident represented approximately 5% of the total deaths, 7% of the male deaths and 2% of the female deaths. Under the *Workers' Compensation Act* of the State of Queensland alone the number of policies taken out has increased from 29,159 in the year 1918-1919 to 46,089 in 1922-1923, with a corresponding increase of premiums payable from £277,826 to £348,191 respectively; 9,768 accident claims were reported in the year 1918-1919 and 12,758 in the year 1922-1923, the total for the period from 1916 to 1923 being 60,076. The average time lost through incapacity per claimant under workers' compensation in that State during the year ended June 30, 1923, was 22.62 days; the majority of workers returned to work within twenty-four days and the greater portion of that number within twelve days; 14% averaged from three to six days, 29% from seven to twelve days, 19% from thirteen to eighteen days, 12% from nineteen to twenty-four days and 26% for a longer period.

During the period 1913-1922 in New South Wales 99,638 accidents claims were reported and 34,963 in Victoria for the period 1920-1922. During the ten years mentioned in New South Wales it is stated that an average of 6.4% of the total insured persons were injured annually and of these 0.05% were fatally injured. In the same State during the period 1920-1922 the average percentage of persons injured annually for all occupational groups was 6.83%. In the Government departments for which particulars are available, 21.3% of the cases of illness of male officers was the direct result of accidents.

Accidents According to Occupation.

In Queensland the experience under workers' compensation to June 30, 1923, indicated that the relative distribution of compensation according to occupation was as follows: Clerical 0.7%, commercial 4.67%, handicraft and factories 21.4%, engineering, construction, mining and timber 32.8%, transport 8%, local authorities and other public service 5.8%, farming and pastoral 23.6%, sports and amusements 0.7%, hotels, restaurants *et cetera* 1.3% and miscellaneous 1.1%. In all primary industries the claims ratio has been much higher than in other industries, which may be due to the fact that the injured worker is some distance from medical aid, as it is noticeable that the cases which do not receive immediate medical attention, are much longer in duration of incapacity. An analysis of accidents in New South Wales in the years 1920-1922, according to occupational groups, showed that the highest accident rate occurred in the smelting and mining groups, 19% of the persons engaged therein being injured annually. The accident incidence in other groups was as follows: Motor car and motor bus services 16.4%, sea transport 14.8%, pastoral and rural 14.6%, quarrying 14.3%, mineral treatment 13.0%, iron trades, metals, machines, implements, conveyances 11.1%, brick, cement, pottery *et cetera* 10.3%, building 10%, furniture and woodworking trade *et cetera* 9.4%, electric power supply 9.2%, labouring, general 9.2%.

Accidents are obviously more preventible than disease and it is essential that adequate measures should be introduced which will aim at their prevention. In Queensland during the year 1922-1923 7.2% of the non-fatal accidents resulted from machine labour, 47.1% from hand labour and 45.7% from other non-machine labour.

Accident Benefits Available.

Friendly society members are entitled to the usual sickness benefits in the case of incapacity as the result of accident. The *Workers' Compensation Acts* provide that an employer is liable for the personal injury of his employee arising out and in the course of his employment. There is no liability, however, in New South Wales and Victoria in respect of any injury which does not disable the worker for a period of at least one week from earning full wages and in Queensland, South Australia and Tasmania for a period of at least three days. In Western Australia the liability commences on the date of the accident. Where an employee has given notice of an accident he shall, if so required, submit himself for examination by a duly qualified medical practitioner. Under the Queensland, South Australian, Western Australian and Victorian Acts insurance is obligatory and must be made in Queensland with the State office, but in Victoria it can be made either with private companies or with the State office; in the other States insurance is not obligatory and may be made with private insurance offices and with the State office also in Tasmania. Under the *Workers Compensation Acts* in the several States the weekly payments are based on a percentage of average earnings and the maximum weekly payment and maximum total liability are prescribed as follows: New South Wales £3 per week with a maximum payment of £750, Victoria £2 per week and £600 respectively, Queensland £3 10s. per week and £750, South Australia £5 per week with a maximum of £700, Western Australia £3 10s. per week and £750, Tasmania £2 per week and £500, for Commonwealth workmen £2 per week and the total amount is unlimited; the seamen's compensation maximum is 30s. per week and the total amount is unlimited.

In the year 1918-1919 in Queensland 7,959 claims, representing 81.5% of those intimated, were paid; in 1922-1923 the number of claims paid increased to 10,406, equivalent to 81.6% of the total intimated. It is estimated that workers' compensation in Australia cost £850,000 in the year 1921.

Recommendation.

As workers' compensation legislation has made the question of industrial accidents a matter of national importance, it is essential that steps should be taken to collect and analyse the records of the experience of accident frequency in the different trades, as the collection of such statistics upon uniform lines is an urgent necessity. It has been suggested that the most satisfactory scheme of national insurance from many points of view will be one combining workmen's compensation with other benefits. One of the difficulties of the British scheme is that the worker, when he is eligible for the various benefits, has to apply to a number of different organizations for payment. The desirable object of a system of national insurance is the combination under one administration of all provisions for assistance to the wage-earner during all circumstances of incapacity to work. In other countries provision is made that where incapacity results from an accident for which compensation is payable under the *Workers' Compensation Act*, the national insurance benefit payable is restricted to the amount by which such workers' compensation is less than the benefits provided under the scheme. Your commissioners, therefore, recommend that equivalent benefits be payable to insured members when incapacitated for work as the result of accident and that the question of including workers' compensation legislation under the national insurance fund administration should be fully considered.

Invalidity Benefit.

Invalidity Benefits Available.

Friendly Societies.—The provision of a financial benefit during a period of casual sickness is very necessary, but in cases of extended sickness or permanent invalidity, when the wage-earner is temporarily disabled for a longer period or permanently incapacitated from work there is an even greater need that financial assistance should be provided, as under these unfortunate circumstances the financial resources of the wage-earner are soon exhausted and he is generally compelled to seek charitable or other assistance. Members of friendly societies in Australia are eligible for a payment varying in the societies of from 10s. to 20s. per week during the second period of six months illness and to a payment of 5s. to 10s. per week thereafter, so long as illness continues. Some members are stated to have been drawing the smaller invalidity benefit continuously for twenty or thirty years; in mining lodges especially, many members are on this benefit for a number of years. Friendly societies will only admit persons to membership who are certified by the lodge doctor as being in sound bodily and mental health, consequently a percentage of the population who most need assistance are unable to obtain the mutual benefits of friendly societies owing to this restriction.

It is undesirable that any restriction as to physical fitness should be placed upon membership of the national scheme, as it is essential that facilities for insurance should be available to those who through physical incapacity may most need it. The usual benefit of 5s. per week paid to friendly society members during continued sickness is considered to be totally inadequate, as during the period when an incapacitated member requires the most assistance he receives a small rate of benefit. A member may in some cases contribute for double sick-pay benefits, but only a small number have taken advantage of this provision. The contributions of a member drawing benefits are generally deducted from the benefits payable, but in some societies when a member is reduced to the 5s. per week rate of sick pay the society pays his contributions from a fund which has been instituted for the purpose, so that he may receive his cash benefits without deduction.

Some friendly society members are in addition drawing the Commonwealth invalidity pension; certain trade unions

and employee's benefit funds provide invalidity benefits of a generally limited nature for their members who in some instances are members of friendly societies also, but the total membership of such benefit funds is, however, comparatively very small. In Government departments and in many large institutions schemes have been instituted whereby employees who are permanently invalided are retired on pension. In some of these schemes it is necessary for the applicant for membership to undergo a medical examination.

Commonwealth Invalid Pensions.—Under the *Commonwealth Invalid and Old Age Pensions Act* 1908-1923 an invalid pension of 17s. 6d. per week is payable subject to certain property and income qualifications to all persons over sixteen years of age who are permanently incapacitated for work. The invalidity must be permanent and at the present time considerable difficulty is experienced with respect to the person who is only temporarily incapacitated for work. According to the strict interpretation of the Act an invalid must have no earnings at all, as incapacity to work means total incapacity to earn and a further provision prevents the grant of a pension to a person who is adequately maintained by his or her parents, but such provisions are not literally enforced, as the commissioner has been granted powers under which he may authorize the payment of pensions in such circumstances. One thousand eight hundred and seventy-eight invalidity claims were rejected during the year 1923-1924, mainly owing to the property and income clauses of the Act. The fact that income is derived by aged and infirm pensioners from an employees' benefit fund is taken into consideration and a deduction made from the pension accordingly, but no deduction is made with respect to friendly society, trade union, provident society or other mutual association benefits.

At June 30, 1911, the total number of invalid pensioners was 7,451, equivalent to approximately 0.2% of the population; at June 30, 1924, the number of pensioners had increased to 42,617, equivalent to 0.7% of the population and indicating an increase far in excess of the increase in population; the percentage of invalid pensioners on the total population of each State being: New South Wales 0.79%, Victoria 0.75%, Queensland 0.72%, South Australia 0.52%, Western Australia 0.62%, Tasmania 0.95%. Of the total number of invalid pensioners, 19,391 were males and 23,226 females.

No particulars are available showing the ages of those drawing invalid pensions, but of 3,073 male pensioners admitted during the year 1923-1924 9% were under twenty years of age, 12% twenty and under thirty years, 14% thirty and under forty years, 22% forty and under fifty year, 37% fifty and under sixty years and 6% over sixty years. Of 3,000 females admitted in the same year 8% were under the age of twenty years, 12% twenty and under thirty years, 14% thirty and under forty years, 18% forty and under fifty years, 43% fifty and under sixty years and 5% over sixty years. The loss in production as the result of workers in the early and middle ages becoming permanently invalided and the increasing financial burdens which the payment of these pensions involves, indicate that urgent action should be taken to institute preventive health services which will aim at a reduction in the incidence of invalidity. A considerable portion of the invalidity for which Commonwealth invalid pensions are now being paid, is stated to be the result of diseases which are preventible and that 32% of the persons to whom invalid pensions were paid during the period 1910-1915 were suffering from the after-effects of infectious diseases. As previously indicated, it is desirable that a systematic tabulation with respect to the disabilities of claimants for invalidity pensions should be undertaken.

Of the male pensioners admitted in 1923-1924, 44% were single, 49% married and 7% widowed. Of the female pensioners admitted 45% were single, 25% married and 30% widowed. The unfortunate circumstances in which the dependent children are placed owing to the invalidity of the breadwinner necessitates under present conditions urgent requests for charitable assistance and this question requires very careful consideration from a national insurance standpoint. At June 30, 1924, the Commonwealth Government's annual liability in respect of invalid pensions payable to 42,617 pensioners was £1,897,246, 91% of the pensioners being in receipt of full pensions, the average pension being 17s. 1d. per week. It has been suggested that invalid and aged persons should be assisted by the Government to become members of friendly societies, but it is considered that the necessary assistance required could be more satisfactorily furnished under a scheme of national insurance.

Invalidity Benefit Recommended.

The following rates of contribution provide for the payment of an invalidity benefit of 20s., 30s. and 40s. per week during that period of sickness extending beyond the first six months of sickness, but not for any sickness experienced after age sixty five in the case of males or after age sixty in the case of females.

INVALIDITY BENEFIT—WEEKLY RATES OF CONTRIBUTION.

Age at Entry.	Males (to Age 65), Per Week.			Females (to Age 60), Per Week.		
	20s. d.	30s. d.	40s. d.	20s. d.	30s. d.	40s. d.
16	2.0	2.9	3.9	1.4	2.2	2.9
17	2.1	3.1	4.1	1.5	2.3	3.0
18	2.1	3.2	4.3	1.6	2.4	3.2
19	2.2	3.4	4.5	1.7	2.5	3.3
20	2.3	3.5	4.7	1.7	2.6	3.4
21	2.4	3.7	4.9	1.8	2.7	3.6
22	2.5	3.8	5.1	1.9	2.8	3.7
23	2.6	4.0	5.3	1.9	2.9	3.9
24	2.8	4.1	5.5	2.0	3.0	4.0
25	2.9	4.3	5.8	2.1	3.2	4.2
26	3.0	4.5	6.0	2.2	3.3	4.4
27	3.1	4.7	6.3	2.3	3.4	4.5
28	3.3	4.9	6.5	2.4	3.5	4.7
29	3.4	5.1	6.8	2.5	3.7	4.9
30	3.6	5.3	7.1	2.6	3.8	5.1
31	3.7	5.6	7.4	2.7	4.0	5.3
32	3.9	5.8	7.8	2.8	4.2	5.5
33	4.1	6.1	8.2	2.9	4.3	5.8
34	4.3	6.4	8.5	3.0	4.5	6.0
35	4.5	6.7	9.0	3.2	4.7	6.3
36	4.7	7.1	9.4	3.3	5.0	6.6
37	4.9	7.4	9.9	3.5	5.2	6.9
38	5.2	7.8	10.4	3.6	5.4	7.3
39	5.5	8.2	10.9	3.8	5.7	7.6
40	5.7	8.6	11.5	4.0	6.0	8.0
41	6.0	9.1	12.1	4.2	6.3	8.4
42	6.4	9.6	12.7	4.4	6.6	8.8
43	6.7	10.1	13.4	4.6	6.9	9.2
44	7.1	10.6	14.2	4.9	7.3	9.7
45	7.5	11.2	15.0	5.1	7.7	10.2

Your commissioners recommend that an invalidity benefit of 20s. per week be payable to insured members during that period when incapacitated for work as the result of sickness or accident extending beyond six months' duration.

Maternity Benefit.

Maternity Benefits Available.

In recent years the necessity for the provision of maternity benefits has been recognized in most countries. The legislation introduced varies in the several countries, but there has been an increasing tendency to include maternity benefits in the scope of national insurance. Such benefits usually provide for the payment of a weekly amount to the mother for a stated period before and after confinement and in some cases for medical attendance. The former benefit is granted partly in order that the wage-earner may be assisted to meet the financial obligations of the time, whilst the latter aims at the provision of adequate medical services which will protect the health

of the mother and the child. The family man, especially the wage-earner, is at an economic disadvantage, which necessitates his being granted financial assistance on such an occasion and it is especially desirable that a national insurance scheme should assist the wife of the wage-earner and also women in employment. Friendly societies do not provide maternity benefits for their members, but the member usually makes arrangements with the lodge doctor for the attendance to his wife at a reduced accouchement fee, of usually three guineas. Married women who are members of friendly societies are not eligible for sick pay during a period of confinement. Friendly society dispensaries usually supply free of cost the materials required in maternity cases, the member paying the cost price of any extras required.

Under the *Commonwealth Maternity Allowance Act*, 1912, a sum of £5 is payable to every mother other than an Asiatic or an aboriginal native of Australia, Papua or the Pacific Islands, who gives birth to a child in Australia, only one allowance being payable in cases of multiple birth. For the year ended June 30, 1924, the allowances paid totalled £670,175; the total payments from the inception of the allowance to that date aggregated £7,733,858. During the year ended June 30, 1924, there were 133,382 births and 134,035 claims for maternity allowances were paid during that year, the discrepancy between the totals being due to still-births, indicating that in practically every instance the allowance was automatically claimed, irrespective of whether the parents required this financial assistance or not. There is no income restriction on claimants, as is the case in the granting of old-age and invalid pensions. The maternity allowance undoubtedly provides a considerable amount of the assistance required by many mothers in providing the necessities of the time. From the national financial standpoint alone it is most economical to provide for the cost of maternity benefit in order that the subsequent heavy expenditure resulting from invalid mothers and from defective and invalid children may be reduced; from the standpoint of national health it is even more important that an adequate maternity benefit be made available. In the year 1913-1914 a total of 86,003 mothers or 64% were attended by a doctor at confinement and 48,595 or 36% were not attended; during the year 1923-1924, 106,277 mothers were attended and 27,758 were not attended by a doctor, being equivalent to 79% and 21% respectively of the total cases. No particulars are available from which can be ascertained the attention, if any, which the 27,758 mothers received. The allowance has resulted in many women who otherwise would have done without medical attendance, now calling in a doctor, as is shown by the increase of from 64% in 1913-1914 to 79% in 1923-1924 in the number of mothers who were attended by a doctor at confinement; but in the interests of the health of the mother and of the child it is desirable that measures should be instituted which will provide for adequate medical attendance at every case of confinement.

A comparison with other countries shows that Australia's birth rate of 23.8 births per thousand of population is fairly low, but it is higher than that for the United States, 22.5 per thousand and Great Britain 19.9 per thousand. Infantile mortality has been decreasing in Australia for the last forty years and in 1922 the rate of 53 deaths per thousand births registered was the lowest ever recorded and with the single exception of New Zealand, was the lowest in the world. The infantile mortality rate in 1905 was 81.8, in 1910 74.8, in 1915 67.5, in 1920 69.1, in 1923 60.5 per thousand births registered. In regard to deaths which occur under one month of age the rate per thousand births in 1907 was 32.0, in 1910 30.4, in 1915 32.4, in 1920 31.8 and in 1923 30.7. The puerperal death rate in 1905 was 5.9 deaths for every thousand registered births, in 1910 5.1, 1915 4.3, 1920 5.0, 1923 5.1. These statistics show that, so far as infantile mortality and puerperal deaths of mothers are concerned, the maternity allowance has not had any apparent effect.

Maternity Benefit Recommended.

It has been suggested that the payment of a definite amount per week to the wife of an insured member of a national insurance scheme for a period prior and subsequent to confiement would be of much greater value than the present system. A further suggestion has been made that alternative arrangements could be provided for portion of this allowance to be paid to the institution in which the mother is confined or that the maternity allowance funds could be utilized for establishing maternity hospitals, maternity wards attached to public hospitals, ante-natal and post-natal clinics and midwifery training schools. Your commissioners are of the opinion, however, that a cash maternity benefit should be made available to the wife of every insured member and to every female insured member of the national insurance fund, as it is desirable that the payment of all such benefits should be incorporated in one comprehensive scheme under one administration. The provision of adequate facilities for pre-natal care, for medical attendance at confinement and for post-natal care form an essential part of the national health scheme.

The following rates of contribution are required to be paid in order to provide a maternity benefit of 20s., 30s. and 40s. per week, payable for two weeks prior to and for four weeks after the confinement of the wife of the insured member:

MATERNITY BENEFIT—WEEKLY RATES OF CONTRIBUTIONS.

Age at Entry.	Males (to Age 65), Per Week.		
	20s.	30s.	40s.
	d.	d.	d.
16	1.9	2.9	3.9
17	2.0	3.0	4.1
18	2.1	3.2	4.3
19	2.2	3.4	4.5
20	2.4	3.5	4.7
21	2.5	3.7	4.9
22	2.6	3.8	5.1
23	2.6	4.0	5.3
24	2.7	4.0	5.4
25	2.7	4.0	5.4
26	2.7	4.0	5.4
27	2.7	4.0	5.3
28	2.6	3.9	5.2
29	2.5	3.8	5.1
30	2.4	3.7	4.9
31	2.3	3.5	4.7
32	2.2	3.3	4.5
33	2.1	3.2	4.2
34	2.0	3.0	4.0
35	1.9	2.9	3.8
36	1.8	2.7	3.6
37	1.7	2.5	3.3
38	1.5	2.3	3.1
39	1.4	2.1	2.8
40	1.3	1.9	2.5
41	1.1	1.7	2.2
42	1.0	1.5	2.0
43	0.9	1.3	1.8
44	0.8	1.2	1.6
45	0.7	1.0	1.4

No data are available in respect of the confinement of female insured members, but the number of such cases would be relatively small. The above rates provide for maternity benefit for a period of six weeks in respect of the confinement of the wife of an insured member resulting in a live birth, but not for any such confinement after the insured male member reaches the age of sixty-five, nor for any confinement resulting in still-birth only. If still-births are included an addition of about 3% must be made to the above-mentioned rates of contribution.

(i.) Your commissioners recommend that a maternity benefit of 20s. per week be payable for a period of two weeks prior to and for four weeks after the confinement of a female insured member or the wife of an insured member.

(ii.) As the cost of the existing maternity allowance is at present borne solely by the Commonwealth, your commissioners are of the opinion that this responsibility should continue with respect to the maternity benefit provided under national insurance.

(To be Continued.)

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A meeting of the Senate of the University of Sydney was held on April 6, 1925.

On the motion of His Honour, Judge Backhouse, seconded by the Hon. Mr. Justice Ferguson, Dr. Cecil Purser was unanimously elected Deputy Chancellor for the year 1925.

The following degrees were conferred *in absentia*:

Master of Surgery (Ch.M.): Dr. L. Fetherston, Dr. F. T. Grey, Dr. P. L. A. O'Halloran.

A letter from the Secretary of the Prime Minister's Department forwarding correspondence dealing with the exchange of Professors between American and Australian Universities was referred to the Professorial Board and the Secretary of the Advisory Committee of the Australian Universities, Melbourne.

The following appointments were made:

Honorary Demonstrators in Anatomy: Dr. A. M. Purves, Dr. M. H. Thomas, Dr. H. A. Sweetapple.

Demonstrators in Botany: Mr. C. Barnard, B.Sc., and Mr. A. H. K. Petrie, B.Sc.

Lecturer in Surgical Anatomy: Dr. V. M. Coppleson.

The Professorial Board reported that the Deans of the Faculties of Arts, Medicine, Science and Engineering had been selected to act as members of the Proctorial Board for the current year.

The following were appointed Examiners for M.D. examinations: Professor A. E. Mills, Dr. Sinclair Gillies, Dr. S. A. Smith, Professor Osborne (Melbourne), Professor Sandes, Professor Vonwiller and Professor Priestley.

On the recommendation of the Faculty of Medicine, it was resolved that Dr. N. D. Royle should be granted the degree of Doctor of Medicine with First Class Honours and be awarded the Ethel Talbot Prize; and that Dr. Lee-Brown be granted the degree of Doctor of Medicine.

On the recommendation of the Faculty of Veterinary Science, Mr. A. C. McKay was awarded the Walter and Eliza Hall Veterinary Scholarship for a period of one year.

Mr. G. H. Bosch was appointed a member of the Cancer Research Committee in place of Sir William Vicars, resigned. Dr. J. M. Petrie was appointed Bosch Cancer Research Fellow, and Associate Professor Burkitt was appointed a member of the Committee of Direction in place of Professor Welsh, resigned.

Correspondence.

A THERAPEUTIC PROBLEM.

SIR: I would be glad of advice *re* the following: A single woman, *ætatis* twenty-four, fell about ten feet to the ground, landing on her back, twelve years ago. She has suffered from headaches since and pain over the sacrum; the latter is aggravated by much sitting or much exertion. A year ago the headaches became more severe and she got little relief from the usual remedies. The head pain is constant with exacerbations; during these some photophobia is present. The pain is worst in the back of the head, is throbbing in character; she has noises in the ears and sleeps little. When asleep she dreams a lot. She is thin, has poor appetite and is very constipated. Six months ago she lapsed into unconsciousness with occasional jactitation of body and limbs, suggestive of hysteria, moaning and crying out at times. Spinal puncture showed considerable pressure, thirty cubic centimetres being removed and was followed by return to consciousness. She complained for some days that her feet seemed to be up in the air. The head was relieved for a few days, then became very severe; the spinal puncture was repeated, same amount removed and some relief obtained. The puncture was repeated in all about ten times; then there was difficulty through the needle being blocked with clot several times and though ultimately successful she became unconscious soon after, due I think to the mental shock caused by the repeated needling. She remained unconscious five days and was showing signs of coming round when it was decided to send her to hospital for X-ray. The head showed nothing abnormal; the spinal picture was not taken. She remained in hospital a month, no further spinal puncture made and she improved, being able to walk about and put on some flesh, but did not lose the headaches. A fortnight ago a sister broke her arm and the headaches became more severe and no sleep other than short snatches. A spinal puncture again revealed great pressure, thirty-three cubic centimetres being withdrawn.

She has only vomited two or three times in the six months and then probably due to stomach disturbance. The pupils have never been unequal, markedly dilated or contracted. Knee jerks have been exaggerated and slight ankle clonus elicited during the unconscious stage, the Babinski sign never positive. There is a psychic element, but there is this constant condition of raised intraspinal pressure. It has been suggested that subtemporal decompression would do good, also through a trephine opening to attach a "tongue" of *dura mater* to the scalp. The urine and *fundus oculi* have showed no abnormalities; blood pressure 145 millimetres.

Yours, etc.,

C. JOYCE.

Kelmscott, Western Australia,
April 6, 1925.

X-RAY THERAPY.

SIR: With regard to Dr. McDowall's reply, I have to repeat that Dr. McDowall did not see the cases I referred to and which I demonstrated. Although the demonstration took place at the Melbourne Hospital, the arrangements were made by a special subcommittee of Congress and not by the hospital authorities and it was agreed that only patients treated by deep X-ray therapy should be exhibited.

I am quite sure, had Dr. McDowall examined these two patients in particular, he would have materially altered the opinions which he has expressed. One failed with ordinary X-ray therapy and the other would not have responded to it. Time is, of course, an important point with regard to the value of treatment, but nearly three years have elapsed since these were treated.

Yours, etc.,

H. FLECKER.

71, Collins Street, Melbourne,
April 15, 1925.

THE CONTROL OF SURGEONS.

SIR: In the leading article of your issue of February 21, 1925, you make it clear that surgical training in Australia is not all that it should be and that the public are not always protected from the inexpert practitioner.

To bring forward such matters for discussion has always been the policy of your journal and many excellent suggestions for improving medical practice have issued from your leading articles.

On this occasion it appears that you have not attacked the problem in your usual business-like fashion and have been carried away by faulty reasoning into side tracks that lead nowhere.

Indeed, when one of your correspondents, Dr. F. Ch. de Crespigny, of Ararat, takes you to task and makes fair comment on your leader, you merely side step the issue.

Your readers expect you to do better on subsequent occasions.

But you cannot be accused of being indifferent in this matter. On the other hand, the leaders of the faculties of medicine in our universities peacefully sleep on in the unruffled calm of their academic surroundings.

Conditions of surgical practice could be improved by taking action somewhat on the following lines:

(i.) Insistence that no practitioner should perform a major surgical operation on his own responsibility until he has served a term as house surgeon at an approved hospital and until members of the surgical staff have approved of him as being competent to perform the ordinary operations of general practice.

(ii.) Provision of a uniform method of "hall marking" those practitioners who aspire to be surgical experts, even though you, Mr. Editor, seem to think the difficulties of applying such a "hall mark" are insuperable.

(iii.) Teaching the public the meaning of this "hall mark" which would stand for ability an integrity, two qualities the public need in their surgical advisers.

In this way adequate surgical treatment will be provided for all classes of the community and there will be no possibility of making invidious distinctions between city and country practitioners.

Yours, etc.,

E. S. MEYERS,

Honorary Assistant Surgeon, Brisbane Hospital.

Brisbane,
April 8, 1925.

MECHANICS OF RESPIRATION.

SIR: In Dr. McDonald's interesting paper on the "Mechanics of Respiration in Health and Disease" I notice that the occurrence of the adenoid facies is explained thus. Owing to the obstruction to the air flow "the intranasal pressure becomes less than the intraoral and as a result the *alæ nasi* become pinched, the bridge of the nose flattened and the palatal vault acutely arched."

Though this might take place in anterior nasal obstruction, in cases of postnasal obstruction I fail to see how the intranasal pressure can possibly become less than the intraoral, unless the latter be raised by forced expiration against closed lips and obviously this could happen only in a case that had not yet become a mouth breather. Now it is a clinical fact that although a child with adenoids may show the chest changes referred to by Dr. McDonald, it will not show any of the nasal and aural changes until it becomes a mouth breather (either completely so or at night only). If his theory were correct, this would be reversed and when the child became a mouth breather, the facial deformities would cease to progress.

The generally accepted theory is certainly the correct one as far as oral changes go. The shape of the alveolar arch is determined by the pressure of the tongue from one side and by the pressure of the muscles of the lips and cheek from the other. In health these balance, but when the nasal obstruction from which a patient suffers, becomes so marked that nasal respiration has to be helped by oral respiration, the tongue no longer supports the arch from the inside. Thus the arch becomes narrow, this in turn makes the palate rise in the middle which in its turn might account for a proportion of deflections of the septum. Differences in air pressure do not enter into the matter. How could they with an open mouth?

The cause of the nasal deformity is not so clear and a number of factors probably enter into it. Adequate consideration of such a controversial subject would, I fear, take up too much of your valuable space.

An interesting fact relative to the mechanics of respiration worth mentioning is that nasal obstruction can give rise to retracted tympanic membranes (with the attendant diminution in the acuteness of hearing *et cetera*) quite apart from any obstruction of the Eustachian tubes or of catarrhal inflammation of this mucous lining. It is caused by the diminished air pressure in the nasopharynx during inspiration and the established fact that air passes more readily down than up the Eustachian tubes.

Yours, etc.,

A. B. K. WATKINS,
M.S. (London), F.R.C.S. (England).

Fell's Chambers, Watt Street, Newcastle.
Undated.

Post-Graduate Work.

A COURSE IN OBSTETRICS IN MELBOURNE.

THE MELBOURNE PERMANENT COMMITTEE FOR POST-GRADUATE WORK announces that a special winter course of post-graduate lectures in obstetrics will be held at the new building of the Victorian Branch of the British Medical Association in Albert Street, East Melbourne, commencing on June 2, 1925. The lectures will be delivered each Tuesday at eight o'clock in the evening. Members can join the course for the lectures only by the payment of a fee of two guineas. The fees for the lectures and for attendance at the Women's Hospital, Carlton, for clinical work and demonstrations are three guineas. A fee of four guineas per week will be charged to members residing in the Women's Hospital during the period from July 18 to August 1, 1925. Practitioners who wish to go into residence for a week or for the whole fortnight, should send their names and addresses in Melbourne to one of the Honorary Secretaries, Dr. J. W. Dunbar Hooper or Dr. H. Dew, 12, Collins Street, Melbourne. The number will be limited to ten in each week and the selection will be by ballot.

The following lectures have been arranged:

June 2, 1925.

DR. J. W. DUNBAR HOOPER: "Ideals of Modern Obstetric Practice."

DR. ARTHUR WILSON: "Antenatal Study."

June 9, 1925.

DR. LEON JONA: "Physiology and Signs and Symptoms of the Toxæmias of Pregnancy."

June 16, 1925.

DR. CAIRNS LLOYD: "Some Difficulties Met with in Obstetric Practice."

June 23, 1925.

DR. R. N. WAWN: "Indications for Interference in Pregnancy."

June 30, 1925.

DR. R. N. WAWN: "Indications for Interference in Labour."

July 7, 1925.

DR. CAIRNS LLOYD: "The Hæmorrhages."

July 14, 1925.

DR. R. H. MORRISON: "The Puerperium."

July 21, 1925.

DR. ARTHUR WILSON: "The Infant: Injuries Received During Birth."

DR. STEWART FERGUSON: "Management of the Infant's Food During the First Fortnight."

Obituary.

CHARLES MacLAURIN.

In the University of Sydney the name of MacLaurin occupies a very prominent position. Twelve and a half years ago the career of Sir Normand MacLaurin, Chancellor of the University of Sydney, member of the Legislative Council of New South Wales and one of the most prominent practitioners of medicine in that State, terminated. The University and the medical profession have again stood mourning by the side of the grave of a MacLaurin, the eldest son of Sir Normand.

Charles MacLaurin was born on November 22, 1872, in Macquarie Street, Sydney. His father had married Eliza, the daughter of Charles Nathan, one of Sydney's leading surgeons of his day. Charles MacLaurin had the greater part of his schooling at the Sydney Grammar School. When seventeen years of age he travelled with his family to England and for twelve months or more he was a pupil at University College, London. In 1891, he entered the University of Edinburgh as a medical student. His career was a distinguished one. Apart from his achievements in his purely professional work and they were many, he was prominent on the social side of university life and was very popular among his contemporaries and seniors. He had at this time manifested unusual literary gifts and was called upon to display them as editor of *The Student*, the magazine of the University of Edinburgh. His artistic temperament had another outlet. He was a fine musician and was possessed of a well trained and good voice.

Having graduated in medicine and surgery in 1895, he again visited London, worked for a time in one of the metropolitan hospitals and then accepted the position of surgeon on board the Aberdeen liner *Australian*. On his arrival at Sydney, he was appointed Resident Medical Officer of the Sydney Hospital, where he laid a sound foundation of the reputation as a surgeon which he subsequently enjoyed. A year later he married an Edinburgh lady and started in private practice. It appears that his grandfather, Charles Nathan, had practised in a house in Macquarie Street, opposite the mint. In 1850, he had moved to a house opposite the Botanic Gardens and it was in this house that Sir Normand MacLaurin and later Charles MacLaurin also practised. At the end of 1898, he was appointed Honorary Assistant Surgeon to the Royal Prince Alfred Hospital. A few years later he secured a similar position at the Royal Hospital for Women. In the ripeness of time he was advanced to the office of full honorary surgeon at both these institutions.

During the early years of the century he was able as a result of many circumstances connected with his career to steal rather more leisure than could his colleagues who were engaged in similar practice in Sydney. In 1910 he paid a visit to England and Scotland. It was during this visit that he obtained the Fellowship of the Royal College of Surgeons of Edinburgh. At a later date he was appointed Clinical Lecturer and Examiner in Surgery at the University of Sydney. He was a good teacher, thanks to his sound knowledge of surgical literature, to his reliable judgement and to his happy command of the English language. Unfortunately, his lack of fluency in speech handicapped him as a lecturer.

He was closely connected with the Mutual Life and Citizens' Assurance Company. During his lifetime his father had been chairman of the company and principal medical officer. At first Charles MacLaurin carried out the ordinary work of examination; later he became assistant to his father and still later succeeded the latter as principal medical officer. The work connected with this office was congenial to him. Always a student of human nature it developed his deductive faculty. It has been said of him in this connexion that the life insurance work and his ability to build up human history out of the fragmentary records contained in the reports of the medical referees fired him with the idea of illness as it affected life and character in the narrower sense and as it might have shaped history in the wider. It certainly appears to have moulded his outlook on historical events and to have impelled him to speculate concerning the influence of disease on the destinies of individuals and even of nations.

Soon after the outbreak of war he volunteered for active service. His first commission is dated August 20, 1915. He was sent first to England, where he was attached to the Australian Auxiliary Hospital, at Wandsworth Common. In this capacity he had the rank of Lieutenant-Colonel. Later he went to France and saw much of the greatest tragedy of modern times. On his return he was transferred to the Australian Army Medical Corps Reserve. From this time onwards he gave up a great deal of his professional work in order to devote himself to writing. A serious illness in 1921 compelled him to obtain leave of absence from the Royal Prince Alfred Hospital. In 1922 he resigned his position on the active staff of the hospital, but he remained on the staff of the Royal Hospital for Women. About this time he again visited Europe. The seven hundredth anniversary of the University of Padua was being celebrated in that year and Charles MacLaurin was asked to represent the University of Sydney. He was the only Australian present at the ceremony and it is said that he had travelled farther than any other to attend this meeting. As a result he was greeted and treated with Italian warmth and was given a degree which he prized greatly as a memento. His account of the picturesque and almost dramatic setting of this important function was delightfully fascinating. He had the power to spread enthusiasm for scenes and events which awakened his admiration.

He wrote many character sketches of persons prominent in history. Some of these have been published in the pages of this journal. Charles MacLaurin attacked each personality from the standpoint of health and disease. He sought every possible indication that might assist him in arriving at a diagnosis and he was not afraid of allowing his imagination free play in attributing conduct and habits to the pathological or developmental processes with which he associated the subjects of his discourses. His literary gifts attracted much attention and nowhere more than in connexion with these historical sketches. While in Europe he arranged for the publication of a collection of these sketches to which he gave the appropriate albeit somewhat gruesome title of "Post Mortem." He contributed signed and unsigned articles to other papers.

In private life he displayed many admirable qualities. Envy and uncharitableness were quite foreign to his nature. Although he had many difficulties and troubles to contend with, especially in the latter years of his life, he was almost boyishly simple and uncomplaining with those who were his friends. It has been suggested to us that the words of Dickens slightly changed would form a fitting epitaph for him: "He had a heart that never hardened, a temper that never tired and a touch that never hurt."

LISTS OF MEMBERS.

Corrigenda.

The Secretary of the Victorian Branch of the British Medical Association has requested us to call attention to the following entries that should have been included in the list of members of the Branch for the current year:

Dr. J. W. Dunbar Hooper's name should appear among the members of the Council of the Branch.
Dr. F. J. Burn, of Tatura.
Dr. R. W. D. Fisher, of Winchelsea.

Crossed swords to indicate war service should have appeared opposite the name of Dr. W. E. Roberts, Naval Base, Flinders.

AUSTRALIAN ARMY MEDICAL CORPS.

The Annual Dinner of the Officers of the Australian Army Medical Corps of the Third Military District (Victoria) will be held on Saturday, May 16, 1925, at Cocker-

ton's Café, 9, Collins Street, Melbourne, at 7 o'clock p.m.. Opportunity will be taken of welcoming Colonel G. W. Barber, C.B., C.M.G., D.S.O., V.D., *Croix de Guerre*, the newly appointed Director-General of Medical Services, who will be present as the guest of the evening. Any officers of the reserve or retired list who wish to attend should communicate with the Deputy Director of Medical Services, Victoria Barracks, Melbourne.

Medical Appointments.

Dr. Thomas Robert Quinn (B.M.A.) has been appointed Acting Visiting Medical Officer, Westwood Sanatorium, Queensland.

* * * *

Dr. Henry Arthur Powell (B.M.A.) has been appointed Acting Honorary Gynæcologist, Adelaide Hospital, South Australia.

* * * *

Dr. M. Frizell (B.M.A.) and Dr. P. Parkinson (B.M.A.) have been appointed Acting Honorary Assistant Radiographers, Sydney Hospital.

* * * *

Dr. Alfred Oswald Barkley has been appointed Junior Medical Officer at the Mental Hospital, Parkside, South Australia.

Books Received.

THE PRACTICAL MEDICINE SERIES, COMPRISING EIGHT VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY, under the General Editorial Charge of Charles L. Mix, A.M., M.D.; Volume IV.: Pediatrics; Edited by Isaac A. Abt, M.D., with the Collaboration of Johanna Heumann, M.D.; 1924. Chicago: The Year Book Publishers. Crown 8vo., pp. 381. Price: $2, and of the Series of Eight Volumes, $15.

VEJLEFJORD SANATORIUM, 1900-1925, Compiled in Commemoration of the late Professor Christian Saugman; 1925. London: John Bale, Sons & Danielsson, Limited. Crown 4to., pp. 120. Price: 7s. 6d. net.

THE TECHNIC OF LOCAL ANESTHESIA, by Arthur E. Hertzler, A.M., M.D., Ph.D., LL.D., F.A.C.S.; Third Edition; 1925. St. Louis: The C. V. Mosby Company. Royal 8vo., pp. 272, with 140 illustrations. Price: $5.50.

LECTURES ON DISEASES OF CHILDREN, by Robert Hutchinson, M.D., F.R.C.P.; Fifth Edition, Revised and Enlarged; 1925. London: Edward Arnold and Company. Demy 8vo., pp. xii. + 459, with illustrations. Price: 21s. net.

THE STATICS OF THE FEMALE PELVIC VISCERA, by R. H. Paramore, M.D. (Lond.), F.R.C.S. (Eng.); Volume II.; 1925. London: H. K. Lewis and Company, Limited. Demy 8vo., pp. xviii. + 424, with illustrations. Price: 24s. net.

THE BACTERIOLOGY OF FOOD, by Cuthbert Dukes, M.D., M.Sc., D.P.H.; 1925. London: H. K. Lewis and Company, Limited. Demy 8vo., pp. vii. + 180, with 25 illustrations. Price: 7s. 6d. net.

A TEXTBOOK OF PRACTICAL THERAPEUTICS: WITH ESPECIAL REFERENCE TO THE APPLICATION OF REMEDIAL MEASURES AND THEIR EMPLOYMENT UPON A RATIONAL BASIS, by Hobart Amory Hare, B.Sc., M.D., LL.D.. Nineteenth Edition, Enlarged, Thoroughly Revised and Largely Rewritten; 1925. London: Henry Kimpton. Royal 8vo., pp. x. + 1,061, with illustrations. Price: 36s. net.

THE LAW RELATING TO MEDICAL PRACTITIONERS, DENTISTS AND VETERINARY SURGEONS, by C. M. Collins, B.A., LL.B. (Barrister-at-Law); 1925. Sydney: Law & Mercantile Publications, Limited. Demy 8vo., pp. vii. + 125.

THE PRACTICAL MEDICINE SERIES COMPRISING EIGHT VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY: Under the General Editorial Charge of Charles L. Mix, A.M., M.D.; Volume V.: Gynecology, Obstetrics; 1924. Chicago: The Year Book Publishers. Crown 8vo., pp. 534, with illustrations. Price: $2 and the series of eight volumes $15.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xvi..

University of the Witwatersrand, South Africa: Senior Lecturer in Dental Anatomy, Physiology and Histology.

Medical Appointments: Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
New South Wales: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
Victorian: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
Queensland: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane United Friendly Society Institute. Stannary Hills Hospital.
South Australian: Honorary Secretary, 12, North Terrace, Adelaide.	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
Western Australian: Honorary Secretary, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
New Zealand (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

May 12.—New South Wales Branch, B.M.A.: Ethics Committee.
May 12.—Tasmanian Branch, B.M.A.: Branch.
May 14.—New South Wales Branch, B.M.A.: Clinical Meeting.
May 14.—Victorian Branch, B.M.A.: Council; Election of Representative on Representative Body.
May 15.—Western Australian Branch, B.M.A.: Council.
May 19.—Tasmanian Branch, B.M.A.: Council.
May 19.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
May 19.—Illawarra Suburbs Medical Association, New South Wales.
May 20.—Western Australian Branch, B.M.A.: Branch.
May 21.—South Australian Branch, B.M.A.: Council.
May 22.—Queensland Branch, B.M.A.: Council.
May 26.—New South Wales Branch, B.M.A.: Medical Politics Committee: Organization and Science Committee.
May 27.—Victorian Branch, B.M.A.: Council.
May 28.—New South Wales Branch, B.M.A.: Branch.
May 28.—South Australian Branch, B.M.A.: Branch.
May 29.—South Eastern Medical Association, New South Wales.
June 2.—Tasmanian Branch, B.M.A.: Council.
June 3.—Victorian Branch, B.M.A.: Branch.
June 3.—Section of Obstetrics and Gynæcology, New South Wales Branch, B.M.A..

Editorial Notices.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to The Medical Journal of Australia alone, unless the contrary be stated.

All communications should be addressed to "The Editor," The Medical Journal of Australia, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

Subscription Rates.—Medical students and others not receiving The Medical Journal of Australia in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad *per annum* payable in advance.